



WASHINGTON STATE
DEPARTMENT OF
E C O L O G Y

Dangerous Waste Permit Application Requirements

For Facilities Which Store and/or Treat
Dangerous Wastes in Tank Systems
and/or Containers

Washington State Department of Ecology
Hazardous Waste and Toxics Reduction Program

Publication # 95-402
revised June 1996

printed on recycled paper

For a copy of this document, please contact:

**Hazardous Waste Permits Unit
Hazardous Waste and Toxics Reduction Program
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600**

(360) 407-6700

Please include your street address for UPS delivery.

The Hazardous Waste and Toxics Reduction Program is responsible for the management and reduction of hazardous waste and toxic substances in Washington State. We are available to answer your questions. Contact the Hazardous Waste Permits Unit for information on obtaining a permit to treat, store, or dispose of hazardous waste.

For information on reducing or recycling hazardous waste, contact your nearest regional office and ask for a Toxics Reduction Specialist. And if you are uncertain about your responsibilities as a hazardous waste generator, ask for a Hazardous Waste Specialist.

Northwest Region (425) 649-7000 Central Region (509) 575-2491

Southwest Region (360) 407-6300 Eastern Region (509) 329-3400

The Department of Ecology is an equal opportunity agency and does not discriminate on the basis of race, creed, color, disability, age, religion, national origin, sex, marital status, disabled veteran's status, Vietnam Era veteran's status or sexual orientation.

If you have special accommodation needs or require this document in alternative format, please contact the Hazardous Waste and Toxics Reduction Program (360) 407-6700 (voice), dial 711, or call (800) 833-6388 (TTY).

**Please Note:
The layout of this document has been modified for
print. Text and content has not changed.**

Introduction

This guidance is designed to assist persons preparing an application for a Dangerous Waste/RCRA¹ final status, or *Part B* permit. It is based primarily on requirements in Chapter 173-303 of the Washington Administrative Code implementing Chapter 70.105 RCW, the Hazardous Waste Management Act, as amended. Federal requirements in Title 40 Code of Federal Regulations are included when no state counterpart exists. A checklist, consisting of the guidance headings, is provided at the back of the document. Applicants should use this checklist to indicate where material has been placed in the permit application.

Federal requirements without state counterpart. This guidance includes federal requirements which the State of Washington has not yet adopted into the Dangerous Waste Regulations. As of 1996, these include the emissions standards for containers and tanks and the requirement for a waste minimization plan. Provide the required material in the application submitted to the Department of Ecology (Ecology); Ecology will coordinate review of the permit application with the US Environmental Protection Agency (US EPA). For more information on the federal requirements, contact US EPA Region 10 in Seattle, at (206) 553-1253.

Existing facilities/units versus proposed facilities/units. Most sections of the application must describe the dangerous waste management facility and operations as they will be conducted under the permit. In two places, Section B, Facility Description and General Provisions and Section E, Releases from Solid Waste Management Units, the application must include information on past operations and design. In Section I, Closure Plan, the application must describe the specific future actions that will be taken to close the facility as permitted. Generally, existing units not included in the dangerous waste permit will be closed under interim status procedures or under the closure plan in an existing permit.

"Treatment-by-generator" and "permit-by-rule." Certain treatment-by-generator activities do not require a "Part B permit." Activities that meet requirements for "permit-by-rule" and meet certain conditions do not need a "Part B permit" (see WAC 173-303-802). Some facilities may conduct both activities that require a "Part B permit" and activities that meet "permit-by-rule" or "treatment-by-generator" requirements. Generally in such cases, the Part B permit covers only those activities which require a permit (see WAC 173-303-802(5)(b) for an exception).

Incinerator and land-based units. The requirements for land-based and incinerator units are in a document entitled *Dangerous Waste Management Facility Permit Application: Additional Requirements for Facilities Which Dispose of Dangerous Wastes or Manage Them in Land-based Units*. When preparing an application for a facility which has an incinerator and/or land-based units, use both guidance documents in conjunction. To provide continuity in numbering, the major outline headings for land-based and incinerator units are provided in this document.

1 RCRA stands for the federal Resource Conservation and Recovery Act.

Disclaimer

Adherence to this guidance does not in any way release facility owners or operators from their obligations to comply with the requirements of Chapter 173-303 Washington Administrative Code or Title 40 of the Code of Federal Regulations, Parts 260-270. This guidance does not constitute agency rulemaking and cannot be relied on by any person to create a right or benefit enforceable at law or equity.

Publication to be Updated Periodically

This guidance will be updated periodically to incorporate substantive changes in state and federal requirements.

Call (360) 407-6700 and ask for the Permits Unit to determine whether you have the most current version of the publication or to obtain an update. The Permits Unit will also be able to tell you if new federal or state regulations are in effect.

Table of Contents

General Application Requirements	1
A. Part A Form	3
B. Facility Description and General Provisions	4
C. Waste Analysis	6
D. Process Information	13
E. Releases from Solid Waste Management Units	36
F. Procedures to Prevent Hazards	38
G. Contingency Plan	48
H. Personnel Training	52
I. Closure Plan and Financial Assurance	54
J. Other Federal and State Laws	62
K. Part B Certification	63
Appendix - Application Review Checklist	64

General Application Requirements

1. Performance Standards. While preparing the permit application, keep in mind the performance standards in WAC 173-303-283. Before Ecology can issue a permit, the agency must determine through review of the permit application that the facility will be constructed, maintained, and operated, to the maximum extent practicable given the limits of technology, in a manner that will prevent:
 - a. Degradation of groundwater quality;
 - b. Degradation of air quality by open burning or other activities;
 - c. Degradation of surface water quality;
 - d. Destruction or impairment of flora or fauna outside of the facility;
 - e. Excessive noise;
 - f. Conditions that constitute a negative aesthetic impact for the public using rights of ways, or public lands, or for landowners of adjacent properties;
 - g. Unstable hillsides or soils as a result of trenches, impoundments, excavations, etc.;
 - h. Use of processes that do not treat, detoxify, recycle, reclaim, and recover waste material to the extent economically feasible; and
 - i. Endangerment to the health of employees or to the public near the facility.

Ecology uses these standards to determine whether more stringent facility standards should be applied than those spelled out in WAC 173-303-280, 290-395, and 600-670. In addition, WAC 173-303-800(8) requires Ecology to ensure permits contain the terms and conditions necessary to protect human health and the environment.

US EPA uses its omnibus authority in RCRA 3005(c)(3) and 40 Code of Federal Regulations (CFR) 270.32 when more stringent standards are necessary.

2. Confidential Information. Any claim of confidentiality for information provided in the application must be substantiated in writing. Both state and federal standards must be met, because both US EPA and Ecology have jurisdiction over dangerous waste management facilities. Ecology will determine whether to grant a request under state laws; EPA will rule on compliance with federal requirements. Until the agencies have made their determinations, access to the material will be restricted to federal and state employees who are involved in making the confidentiality determination.

Once portions of the application are certified as confidential, they will be made available to Ecology and EPA staff reviewing the application, but will not be disclosed to members of the public.

To obtain a certification of confidentiality under state law, show how this information relates to production processes unique to the company, or how disclosure of the information may adversely affect the company's competitive position; see # c below. To be approved, granting a request must not be detrimental to the public interest and must be in accord with the policies and purposes of Chapter 43.21A Revised Code of Washington; see RCW 43.21A.010, 020, and 160.

To obtain a certification of confidentiality under federal law, show that the company has treated the information as confidential by restricting access to it; see # d below. The federal requirements are in 40 CFR Part 2 (Public Information).

For each figure or item for which confidentiality is claimed:

- a. Identify which portions of the figure or item are entitled to confidential treatment
 - b. State how long the information should be treated as confidential;
 - c. Describe how the processes are unique to the business or how the company's competitive position may be adversely affected if the information is released to the public or to a competitor; and
 - d. Describe:
 - i. What measures have been taken to guard against undesired disclosure of the information to others;
 - ii. To what extent the information has been disclosed to others, and what precautions were taken in connection with that disclosure; and
 - iii. Whether any other state or federal agency has made a determination of confidentiality for the information. If so, include a copy of the determination.
3. Application Submittal. Contact the Ecology office that will process the permit application to find out how many copies to submit. One of the copies must have the original signatures for the Part B certification statement and the Part A form.
4. Maps, Site Plans, Diagrams. For each map, site plan, and diagram:
- a. Provide a legend, title, and page number; and
 - b. For maps and site diagrams:
 - i. Include a direction arrow; and
 - ii. Make sure the map or diagram is clear and legible.
5. Internal Consistency. Information provided throughout the application must be consistent. When the same data, procedures, diagrams and other information are provided more than once, Ecology will compare the material. Inconsistent information will result in a Notice of Deficiency (NOD) item. For example, applications often provide inconsistent information on storage capacity.
6. Cross-Referencing. Ensure references to tables, figures, appendices, and other sections of the application are complete and accurate.
7. Abbreviations and Acronyms. Define all abbreviations and acronyms used in the application. A glossary of abbreviations and acronyms may assist agency review of the application. Do not create new definitions for terms that are defined in state or federal regulations.

8. Revised Applications.

- a. Generally, Ecology will ask that any changes made to the application be marked. Typically, we want to see what was removed and added. This speeds review. If an entire section has been substantially revised, indicate this has been done rather than showing what has been removed and added.
- b. When preparing a revised application in response to a Notice of Deficiency, provide a document that summarizes how you are responding and indicates where in the application the item(s) relating to the response is(are) located. Submit this NOD Response Summary with the revised or new application.

For the remainder of this guidance, both federal and state citations are provided after headings. Citations for Chapter 173-303 Washington Administrative Code (WAC) are followed by those for 40 Code of Federal Regulations (CFR) Parts 264 and 270. The federal citations are always in brackets. For example: "806(2) [270.10(d)]" refers to WAC 173-303-806(2) and 40 CFR 270.10(d).

A. Part A Form

806(2), 810(12)(a), 810(13) [270.10(d), 270.11(a) and (d), 270.13]

Complete forms 1 and 3 as they apply to the dangerous waste management activities proposed in the Part B application for a final status permit. Provide all the information required by the forms and the accompanying instructions; reference previous Part A's only if the Part B application is a revision in response to a Notice of Deficiency on a final status permit application. The original signed form must be submitted with the application; extra copies of the application required by Ecology and EPA may have copies of the form rather than original signatures.

The completed Part A form will become part of the facility's permit.

When filling out part II on Form 3, mark the boxes in part II, First or Revised Application, as follows:

- If the facility has not been constructed and does not have a final status permit², mark the box in A.2, "New facility."
- If the facility:
 - Has an interim status permit and is requesting a final status permit, do not mark box B.1; it is for changes to the interim status permit only. Type in: "First application for final status," "revised application for final status," or "first (or revised) application for renewal"; or
 - Has a final status permit and is requesting a permit modification or permit renewal, check box B.2. When requesting a permit renewal, make sure to state so in the cover letter transmitting the application.

² A business proposing a facility may obtain a final status permit, then request a permit modification before beginning construction of the facility. In such a case, the facility, though not constructed, is submitting a revised application to obtain a permit modification; the facility, therefore, marks box B.2.

Facilities which have interim status note: The Part A form provided along with the Part B application *does not* update or change the facility under interim status; it goes into effect when the final status "Part B" permit becomes effective. To change structures or operations under interim status, a facility must specifically request a change under applicable state and federal rules, WAC 173-303-805(7) and/or 40 CFR 270.72. Several factors affect whether federal and/or state procedures must be followed. If you have questions about changes under interim status, contact the appropriate Ecology regional office.

B. Facility Description and General Provisions

806(4)(a)(i),(x), (xi), (xviii) [270.14(b)(1), (10), (19)]

Facilities must describe the facility and its operations, the schedule for constructing or remodeling the facility, and how the facility meets standards for the seismic risk zone in which it is located. The facility also must provide information on traffic routes to and on the site and a topographic map of the facility and surrounding areas. The following sections describe in detail what to provide in the application.

Application sections included in the facility's operating permit. The following section will be incorporated into the permit:

- *Topographic Map*, B-2
- Application sections not included in the facility's operating permit. Ecology will use information in the following sections to evaluate other portions of the permit application. Ecology will use construction schedule information in the application to write a permit condition with a schedule for facility construction.
- *Facility Description*, B-1(a)
- *Construction Schedule*, B-1(b)
- *Seismic Consideration*, B-3
- *Traffic Information*, B-4

B-1 General Description

806(4)(a)(i) [270.14(b)(1)]

B-1a Facility Description

Describe the facility, including a general description of the nature of the business and the types of industries served. Clearly identify which structures and processes for generating and/or managing dangerous wastes exist and which are proposed.

- (1) Provide an overview of facility operations, including: facility location, ownership and management; dangerous waste categories managed; the operations to treat and/or store dangerous wastes; the production processes and waste management processes that generate wastes; and the history and location of units regulated under the Dangerous Waste Regulations.

- (2) Include both narrative and detailed flow diagram descriptions of the dangerous waste management operations and of the processes generating dangerous wastes. Provide an integrated representation of how and where dangerous waste is generated at the facility, how and where dangerous waste generated off-site enters the facility, how waste is tracked, where the waste goes as it is treated and/or stored, which equipment and structures are used to treat and/or store different categories of dangerous wastes. While site diagrams and detailed process flow diagrams are needed, it is not necessary to provide construction blueprints for this section or to duplicate waste analysis information provided under Section C.
- (3) Include processes that are regulated under the Dangerous Waste Regulations as "treatment-by-generator," "permit-by-rule," and/or recycling activities. This information is needed so Ecology can assess which activities require a permit and which are regulated under the Dangerous Waste Regulations without a permit. Also, the recycling information is needed to assist with review of the application for compliance with the air emission control requirements in 40 CFR Part 264 Subparts AA and BB.
- (4) Provide a summary of other environmental permits the facility is required to have for its operations, indicating which of these permits have already been issued. Examples of permits commonly required for facilities are National Pollutant Discharge Elimination System (NPDES), on-site sewage disposal, well-drilling, water rights appropriation, and/or local building permits.

B-1b Construction Schedule

Provide a schedule for constructing the facility, or if the facility is already built and operating, for constructing new dangerous waste management units or for remodeling existing units. Include the time necessary to develop detailed design drawings and obtain local permits in addition to the site preparation and actual physical construction.

B-2 Topographic Map

B-2a General Requirements: 806(4)(a)(xviii) [270.14(b)(19)]

Submit a topographic map which shows the facility and a distance of 1,000 feet around it at a scale of 1 inch equal to no more than 200 feet. The map must include: contours sufficient to show surface water flow around each operational dangerous waste management unit within the facility, map scale and date, 100-year flood plain area, surface waters, surrounding land uses, a wind rose, map orientation, and legal boundaries of facility site. The map must also indicate the location of access control, injection and withdrawal wells, buildings, structures (including sewers, loading and unloading areas, fire control facilities), flood control or drainage barriers, run-off control systems, and new (proposed in the application) and existing dangerous waste management units and solid waste management units.

Note that multiple maps may be submitted, but all must be at the required scale. Large TSD facilities may ask Ecology for permission to use other scales. Staff will evaluate requests for use of alternate scales on a case-by-case basis.

The map does not need to duplicate information that is presented on the map provided as part of the Part A form as long as the map is at the required scale.

B-2b Additional Requirements for Land Disposal Facilities

B-3 Seismic Consideration

806(4)(a)(xi) [270.14(b)(11)(i) and (ii), 264.18(a)]

If the application is for a proposed facility or an expansion of an existing facility, identify the seismic risk zone for the facility site. Use state or local maps to identify the zone, or if they are not available, use United States Geological Survey Open File Report number 82-1033. Demonstrate that the facility is designed to resist seismic ground motion and that the facility design is sufficient to withstand the maximum horizontal acceleration of the "design earthquake" identified for that seismic risk zone.

B-4 Traffic Information

806(4)(a)(x) [270.14(b)(10)]

Provide the following traffic-related information for the facility: traffic patterns on-site; estimated volumes, including number and types of all vehicles that travel on-site; traffic control signs, signals, and procedures (for example, show turns across traffic lanes and stacking lanes, if appropriate); adequacy of access and on-site roads, including road surfacing and load bearing capacity; and the load-bearing capacity of load/unload areas. Show which areas on-site are asphalt and which are concrete. Indicate the routes to the site.

C. Waste Analysis

806(4)(a)(ii) and (iii), 300 [270.14(3), 264.13(b) and (c)]

To obtain EPA guidance on developing Waste Analysis Plans, contact the National Technical Information Service (NTIS) and ask for the document entitled *Waste Analysis At Facilities that Generate, Treat, Store, and Dispose of Hazardous Wastes: A Guidance Manual*. The NTIS document number is PB94-963-603. The telephone number for NTIS is (703) 487-4650.

The sections entitled *Waste Analysis Plan*, C-2, and *Manifest System*, C-3, will be incorporated into the facility's permit. Data provided in the application in response to Section C-1, *Chemical, Biological and Physical Analyses*, provides information Ecology needs to evaluate the permit application.

C-1 Chemical, Biological and Physical Analyses

806(4)(a)(ii), 806(4)(b)(ii) and (v); 806(4)(c)(x); 140; 300; 395; 630(7)(c) and (9); 640(1)(b), (2)(c), (3)(a), and (10) [270.14(b)(2), 264.13(a), 268.7, 268.9]

For each waste stream stored or treated in the dangerous waste units, describe the waste stream, its dangerous waste designation(s), and the basis for the designation, and provide the detailed chemical, biological, and physical analyses of representative samples of the waste stream.

- a. Include the identity and concentration of all constituents and physical properties likely to affect proper waste management at the facility. The data must support the assignment of waste codes on the Part A form. The data must also supply *all* information necessary to select containers or tanks compatible with each waste stream, determine the need for tank or container liners and the compatibility of the lining material with the waste streams to be managed, properly segregate wastes in storage areas, determine the compatibility of the waste with the design limits of the storage area or treatment process(es) for which it is destined, and determine whether the waste is subject to the Land Disposal Restrictions. This includes data to demonstrate compliance the air emission control standards in 40 CFR Part 264 Subparts AA, BB, and CC or to show the standards do not apply.
- b. Describe whether the analysis provided is from published or documented data on the waste, such as MSDS sheets and knowledge of the process generating the waste, or is data from testing. Provide support documentation if the analysis is from published data or knowledge. Provide laboratory reports to support data obtained from testing.
- c. Identify each waste stream with any of the following attributes: (1) will be managed in tanks and is acutely or chronically toxic by inhalation, (2) does not contain free liquids, is neither ignitable nor reactive and will be stored in containers in an area without secondary containment, **or** (3) contains no free liquids and it will be stored or treated in tank systems that have been exempted from WAC 173-303-640(4).

C-1a Waste In Piles

C-1b Landfilled Wastes

C-1c Wastes Incinerated and Wastes Used in Performance Tests

C-2 Waste Analysis Plan

806(4)(a)(iii), 140, 300(5) and (6) [270.14(b)(3), 264.13(b) and (c), 268.7 and 268.9]

Describe the procedures and methodologies for conducting analyses to obtain the information on a waste's properties needed to properly treat or store the waste, to comply with the land disposal restrictions, and to determine compliance with air emissions standards. Include a quality assurance program plan. The Waste Analysis Plan must be a stand-alone document.

C-2a Detailed Chemical, Physical, and/or Biological Analysis

C-2a(1) Parameters and Rationale: 806(4)(b)(ii)(A); 140 (LDR); 300(2), (5)(a), and (5)(f); 395(1) and (2); 630(7)(c); 640(1)(b), (2)(c) and (3)(a) [270.15(b)(1), 270.24, 270.25, 264.13(b)(1) and (8), 264.17, 264.191(b)(2), 264.192(a)(2), 264.1034(d), 264.1063(d), 268.7]

List parameters chosen for the detailed analysis (sometimes called a "profile") of each waste stream to be managed in the permitted dangerous waste units.³ Explain the rationale for the selection of each parameter; that is, describe how the analysis for the parameter will provide sufficient information on the waste's properties to produce the detailed analysis required in C-1.

For example, parameters will be needed to identify the waste, to identify incompatible and/or inappropriate wastes (e.g., reactive wastes), to determine whether the waste is restricted from land disposal under 140 (which references 40 CFR Part 268), to determine whether a restricted waste meets the treatment standards in 140 (40 CFR Part 268), to determine (verify) that certain constituents or groups of constituents are not present in the waste (examples include constituents such as PCBs), and to determine whether the waste meets process (treatment) and/or storage design limits.

When applicable, include parameters for complying with specialized waste management requirements related to managing ignitable, reactive, or incompatible wastes; for ensuring the waste is compatible with other wastes it will be stored with, the container or tank in which it will be managed, and any material lining the container or tank; for determining whether a waste is EHW; for determining that a waste does not have free liquids if it is neither ignitable nor reactive and will be stored in containers in an area without secondary containment; for determining that a waste contains no free liquids if it will be stored or treated in tank systems that have been exempted from WAC 173-303-640(4); for complying with the land disposal restrictions waste analysis requirements in 140 (40 CFR §268.7 and §268.9); for determining if the waste must be managed in operations, equipment, tanks, or containers that meet the air emission control standards in 40 CFR Part 264 Subparts AA, BB, and CC; and for determining if the facility meets the air emissions limits in 40 CFR Part 264 Subpart AA.

If one or more waste streams are destined to be stored in containers in an area without secondary containment, include the parameters that will be used to determine the waste does not contain free liquids and meets the other requirements of WAC 173-303-630(7)(c).⁴

Note that *parameters* might include, but are not limited to, pH, density, physical form (liquid or solid), other physical attributes such as number of phases, flash point, and specific "dangerous" constituents such as "methyl ethyl ketone" or "lead". *Corrosivity* is not a parameter; the facility checks the parameter *pH* to determine if the waste has the property of corrosivity.

3 See C-2f for the added requirement that an off-site facility confirm the identity of wastes specified on the accompanying manifest or shipping paper before accepting a shipment.

4 Test for free liquids using the Paint Filter Liquids Test, method 9095 in EPA Publication SW-846.

C-2a(2) Analytical Methods: 110, 300(5)(b) [264.13(b)(2) and (8), Part 264 Subparts AA, BB, and CC]

C-2a(2)(a) Parameters and Methods

Describe the method(s) of obtaining and/or testing for each parameter. Federal and state rules set standards for how certain types of information must be obtained. For example:

For parameters that will be used to *designate* the waste, EPA methods or Washington State WAC 173-303-110 methods must be used; for each such parameter, reference the test method(s) chosen (e.g., EPA SW-846 Test No., WAC 173-303-110 Test No.); include both sample preparation methods, if applicable, and testing methods.

The current EPA Methods are in the *third edition* of Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA SW-846) and Update I. Both are available from the Government Printing Office; call (202) 783-3238 and ask for document #955-001-00000-1;

For parameters that will be used to determine compliance with the air emission standards in 40 CFR Part 264 Subparts AA - CC, use the methods required in those subparts. The Subpart AA - CC methods must be used both in determining applicability of the standards and compliance with the emission limits/ reductions (see Section D-8 for more information); and

For parameters used to obtain information needed for other reasons (e.g., compatibility with containers, other wastes, or treatment processes), reference a standard test procedure, describe the test methods that will be used, and/or describe how process information will be obtained and what support documentation will be provided. Examples of support for data that will be gathered through process knowledge include material safety data sheets describing the chemicals added to a production or treatment process, a study of the process, and a detailed description of the process are ways to obtain data on parameters.

C-2a(2)(b) Quality Assurance Program

Provide a plan for a quality assurance program or demonstrate the facility will use a Washington State accredited laboratory. For the Quality Assurance Program Plan, include:

- (i) Quality assurance objectives;
- (ii) Sampling procedures, including sample custody procedures;
- (iii) For *each analytical method*, specify the detection and practical quantitation limits for *each parameter* (or constituent), or the acceptable parameter range, as appropriate. If more than one method will be used to test for a specific parameter, describe the circumstances under which each method will be used; for example, for measuring pH, SW-846 provides three methods, each of which has limitations and is used under certain circumstances;
- (iv) Calibration and quality control procedures, performance and system audits, and preventive maintenance;
- (v) Data reduction, review, and reporting; and
- (vi) Data assessment and corrective action.

The following guidance is available from Ecology:

"Guidelines and Specifications for Preparing Quality Assurance Project Plans," Ecology publication number 91-16.

The following US EPA guidance is available to assist in preparing the plan. To obtain copies of the documents, contact US EPA Region 10 at (206) 553-1253 or write: US EPA Region 10, RCRA Permits Team, 1200 6th Ave., HW-106, Seattle, WA 98101.

"You and Quality Assurance in Region 10," US EPA Region 10, ES-096, March, 1988.

"Quality Management Program Plan for Region 10," US EPA, Region 10, DCN RQMP-001/92.

"Guidelines and Specifications for Preparing Quality Assurance Program Plans," QAMS-004/80, EPA 600/8-83-024.

"Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans," QAMS-005/80, December 29, 1980.

"Guidance on Preparation of Laboratory Quality Assurance Plans," EPA 910/9-92-032.

EPA Order 5360.1, "Policy and Program Requirements to Implement the Quality Assurance Program," April 3, 1984.

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, Chapter 1.

C-2a(3) Generator-Supplied Analyses: 300(3), (5)(g), and (e) [264.13(b)(5)]

Describe the waste analyses and other needed information generators have agreed to supply. Include the process that generates the waste, the physical and chemical description of the waste, the analytical procedures and results used to characterize the waste (or documents supporting process knowledge), and all applicable Washington State and federal waste numbers and codes.

C-2b Additional Requirements for Wastes Generated Off-site:
806(4)(a)(iii), 300(6) [264.13(c)]

When the facility accepts wastes generated off-site, the Waste Analysis Plan must describe the procedures and methodologies to inspect and/or analyze a representative portion of each waste⁵ received from off-site to confirm it matches the identity of the waste specified on the accompanying manifest or shipping paper.

C-2b(1) Parameters and Rationale to Confirm Identity of Off-site Waste: 300(3), (5)(a), and 5(g) [264.13(a)(4) and (b)(1)]

Describe the key chemical and physical parameters for which the sample will be inspected and/or analyzed to confirm the waste's constituents and properties match those in the *profile* for the waste (these parameters are often called *fingerprinting* and/or *confirming* analyses). The fingerprinting parameters should also confirm if the waste shipment includes wastes not allowed at the facility under

5 A transporter's shipment may include wastes from several generators. *Each waste* means each separate waste stream listed on each manifest. It is inappropriate to sample just one waste stream from a shipment containing several waste streams.

its permit; if the waste is ignitable, reactive, or potentially incompatible with other wastes; and if the waste's properties are within the design limits of the storage area or treatment process(es) for which it is destined.

The parameters may be set up in a two-tiered system with qualitative "fingerprinting" analyses followed by quantitative "confirmatory" analyses to verify any anomalous results (i.e., results outside the acceptable range for the waste stream).

Include *criteria* for determining whether the results of the analysis indicate the waste shipped does or does not match the identity of the waste shown on the manifest or shipping paper: A difference in the numerical value obtained from a test performed on the sample(s) may indicate normal variation or it may indicate that the waste is a different type and must be managed differently than the waste reported on the manifest or shipping paper. For example, acceptable ranges of values for each parameter could be provided for different groups of similar waste streams.

C-2b(2) Analytical Methods to Confirm Identity of Off-site Waste: 300(3) and (5)(b)
[264.13(b)(2)]

Describe the method(s) of obtaining and testing for each fingerprinting parameter used to confirm the identity of off-site wastes. Include both sample preparation methods, if applicable, and testing methods.

Describe quality assurance and quality control procedures for these methods. Specify the detection and practical quantitation limits for each parameter (or constituent), or the acceptable parameter range, as appropriate. If more than one method will be used to test for a specific parameter, describe the circumstances under which each method will be used.

C-2b(3) Representative Sampling of Incoming Off-site Wastes: 300(3) and (5)(c),
110(2) [264.13(b)(3), Part 261, Appendix I]

Describe the statistical method used to determine a representative sampling of the incoming wastes (e.g., a minimum percentage of containers to be sampled and a method to ensure containers to be sampled are identified via a statistically random method). At a minimum, 10% of the containers in each waste stream from each generator must be sampled and each bulk shipment must be sampled. If biased sampling will be conducted, provide the rationale and criteria for conducting such sampling and provide the procedures.

C-2c Methods for Collecting Samples for Detailed and Confirming Analyses: 300(5)(c), 110(2) [264.13(b)(3), 264.1034(d), Part 261, Appendix I]

Identify and reference the sampling methods used to obtain a representative sampling of each waste stream for analysis and document that the chosen method is appropriate for the type and nature of the waste stream. Describe how many samples are required to be considered a representative sampling; for example, a minimum of four grab samples must be tested for Total Organic Carbon when

determining whether a waste must be managed in a unit that meets Part 264 Subpart AA standards.⁶ Describe maintenance and decontamination of sampling equipment, sample preservation techniques, chain of custody procedures, sample holding time limits, and other quality assurance and quality control procedures. See WAC 173-303-110(2) for a discussion of representative sampling methods.

For processes the facility uses to treat dangerous wastes, provide process diagrams showing where samples will be collected to determine whether the waste meets process control standards.

C-2d Frequency of Analyses: 300(4), (5)(d) [264.13(b)(4)]

Describe the frequency at which the analyses in C-2a will be repeated. Provide criteria for determining that the process or operation generating the waste may have significantly changed, thereby requiring the analysis to be repeated.

C-3 Manifest System

370 [264.71, 264.72]

Owners and operators who accept wastes from off-site must ensure manifests are checked against the wastes actually received, that *significant discrepancies* are identified and attempts made to resolve them, that loads are rejected only under certain specified conditions, and that manifests are properly signed and distributed.

C-3a Procedures for Receiving Shipments: 370(2), (3), (4) [264.71]

- (1) Describe the procedures established to ensure that when a dangerous waste shipment accompanied by a manifest or shipping paper is received the following actions will be taken:
 - (a) Manifests or shipping papers are checked against the shipment to determine whether significant manifest discrepancies exist. These procedures should refer to or include the procedures for fingerprinting wastes received from off-site described in C-2b;
 - (b) Each copy of the manifest or shipping paper is signed and dated;
 - (c) Significant discrepancies are noted on each copy;
 - (d) The transporter is given one signed copy before leaving the facility;
 - (e) A copy is sent to the generator within thirty days; and
 - (f) A copy is retained at the facility for at least three years from the date of delivery.
- (2) Clearly present who (position title or class) is responsible for verifying shipments against manifests and for signing manifests.

⁶ See *Hazardous Waste TSDF - Technical Guidance Document for RCRA Air Emission Standards for Process Vents and Equipment Leaks*, EPA - 450/3-89-021, page 6-19.

C-3b Response to Significant Discrepancies: 370(4) [264.72]

Describe the procedures established to ensure that for any significant manifest discrepancy, attempts to reconcile the discrepancy with the waste generator or transporter will be made. Describe how the discrepancy will be resolved, and provide the criteria for determining whether or not a discrepancy has been adequately resolved. Describe how the wastes will be managed while the discrepancy is being resolved, especially since the composition of the waste may be unknown. Also describe the actions taken in the event that a significant discrepancy is not resolved. Identify the staff (by position titles) who work to resolve manifest discrepancies involving the type of waste.

C-3c Provisions for Non-acceptance of Shipment: 370(5) []

C-3c(1) Non-acceptance of Undamaged Shipment: 370(5)(b) []

Describe the procedures established to ensure that a dangerous waste shipment will be denied receipt only for those acceptable reasons set forth in WAC 173-303-370(5)(a). Also describe the actions taken to initiate generator contact so the wastes may be directed to an alternate TSD in the event that an undamaged shipment that is acceptable for further transportation is denied receipt. Identify the staff (by position titles) who determine when a shipment of waste must be rejected.

C-3c(2) Activation of Contingency Plan for Damaged Shipment: 370(5)(c) []

For cases in which shipment is denied receipt, present specific criteria or examples for determining if containers cannot leave the facility because they are damaged to such an extent that they would present a hazard to the public health or the environment in the process of further transportation or that the waste is in such a condition as to present a hazard to the public health or the environment in the process of further transportation. Describe the procedures for using these criteria to determine when to activate the contingency plan for a damaged shipment.

C-4 Tracking System

380

Please describe the system used to track each dangerous waste received or generated at the dangerous waste management unit(s) from point/time of receipt or generation through shipment off-site, showing how each container or waste shipment is tracked as it moves through the facility. Include a discussion of the method(s) used to uniquely identify each container.

D. Process Information

806(4)(b) - (c), 630 through 670 [270.15 - 270.26, 264 Subparts I - BB]

D-1 Containers

806(4)(b), 630 [270.15, 264 Subpart I]

This portion of the application covers management of containers used to treat and/or store dangerous waste. Management of containers in *accumulation areas* would be discussed in sections B and E rather than here.

Section D-1 will be incorporated into the facility's final status permit.

D-1a Description of Containers: 630(4) [264.172]

Provide the following information about the containers used to treat and/or store dangerous waste: construction materials, dimensions and useable volumes, U.S. Department of Transportation container specifications (provide specific references to current federal rules at 49 CFR) or other manufacturer specifications, liner specifications (if applicable), waste type(s) stored in each container type, and container condition (new, used, reconditioned). Describe how many empty containers and overpack drums (for leaking or damaged containers) will be kept on-site. Enough detail is needed to demonstrate that containers are made of or lined with materials which will not react with, and are otherwise compatible with, the dangerous waste to be stored, so the ability of the container to contain the waste is not impaired.

D-1b Container Management Practices: 630(5) and (8); 340(3) [264.35, 264.173]

Describe the specific container management practices (procedures, equipment, structures) used to ensure that dangerous waste containers are always kept closed during storage, except when wastes are added or removed, and that containers are not opened, handled, or stored in a manner that may cause them to rupture or to leak. Include procedures for transporting containers across the facility to the storage unit and for moving and managing waste containers within the unit. Also describe areas used to prepare containers for placement into storage or into a treatment or recycling process (sometimes these areas are called *staging areas*).

Indicate the aisle space maintained between rows of containers. WAC 173-303-630(5) specifies a minimum 30-inch aisle space; WAC 173-303-340(3) specifies there must be sufficient aisle space to allow the unobstructed movement of emergency response personnel and equipment. The Uniform Fire Code requires a four-foot aisle space for certain hazardous materials such as flammables. WAC 173-303-630(5) states each row of drums must be no more than two drums wide.

Provide the maximum number, volume, and stacking height of containers for each area in which containers are stored or staged and indicate the volume of the largest container that will be held in the area. For staging areas, describe time limits (no more than 24 hours) for holding containers in the area. Provide a diagram (or diagrams) showing the stacking pattern(s) for containers; include the stacking arrangements for the various sizes of containers and types of dangerous wastes that will be stored in the container storage area(s).

D-1c Container Labeling: 806(4)(b)(iii), 395(6), 630(3) []

Describe the system used to label containers and to destroy or remove labels from empty containers. Container labels must include accumulation or generation start date, the words "hazardous waste" or "dangerous waste," and major risks (toxic, carcinogenic, persistent). The applicable US DOT label with the graphic symbol may be used to meet the requirements for identifying the major risks of the waste.

D-1d Containment Requirements for Storing Containers

Secondary containment systems are required for areas in which containers hold free liquids or wastes with the designations F020, F021, F022, F023, F026, and F027 whether or not the wastes contain free liquids. They are also required for wastes exhibiting the characteristic of ignitability or of reactivity as described in WAC 173-303-090(5) and (7). The secondary containment system must meet the design and operating requirements described in this section.

D-1d(1) Secondary Containment System Design: 806(4)(b)(i) and (iv), 630(7) [270.15(a); 264.175(a), (b), and (d)]

Provide the following design information to demonstrate that each system is capable of collecting and holding spills and leaks and that each uncovered storage area is capable of holding the additional volume resulting from the precipitation of a maximum twenty-five year storm of twenty-four hours duration.

All design drawings must be certified by a professional engineer.

D-1d(1)(a) System Design: 806(4)(b)(i), 630(7) (a) and (d) [270.15(a), 264.175(b)]

Provide design and profile drawings of the existing and/or planned container storage and staging area(s), showing the secondary containment system(s). Include basic design parameters, dimensions, and materials of construction.

- (i) Indicate which areas will be covered and which uncovered. For covered areas, show gutters and downspouts or other methods for conveying water away from the secondary containment.
- (ii) To show that the base is sufficiently impervious to contain leaks and spills of waste and accumulated precipitation until it is detected and removed, demonstrate that the secondary containment system(s) and floors of the storage area(s) are:
 - (A) Constructed to be free of cracks or gaps. For example, provide design for and location of expansion and control joints to control cracking; and
 - (B) Provided with an impermeable sealant, coating, or lining compatible with the waste(s) managed in the area(s).
 - (I) Describe the sealant(s), coating(s), and/or lining(s), including information it is (they are) compatible with the wastes; and

- (II) For new structures, Ecology expects that the secondary containment system(s) and floors of the storage area(s) will be constructed with chemical-resistant water stops at all joints
- (iii) Demonstrate that the base of each storage area is:
 - (A) Sloped or that each containment system is designed and operated to drain and remove liquids resulting from leaks, spills, or precipitation. Note that the UFC requires a slope of at least 1 percent, see 80.301(l)(3)(B).

Alternatively, demonstrate the containers are elevated or are otherwise protected from contact with accumulated liquids; and
 - (B) Is designed for positive drainage control (such as a floor sloping to a blind sump) to prevent release of contaminated liquids and so uncontaminated precipitation can be drained promptly.
- (iv) If required by Ecology, demonstrate that containers are protected from the elements by means of a building or other protective covering that allows for adequate inspection. Such a demonstration is required if Ecology determines protection is necessary to prevent a release of waste or waste constituents due to the nature of the waste or the design of the container.

D-1d(1)(b) Structural Integrity of Base: 806(4)(b)(i), 630(7)(a) [270.15(a), 264.175(b)]

Provide an engineering evaluation, certified by a professional engineer, of the structural integrity of the base of each storage area, including calculations showing the foundation and floor are capable of supporting the equipment operating in the storage area, such as forklifts carrying full pallets, along with the weight of a full capacity of containers. Describe the foundation preparation, base design, and construction procedures to control cracking due to uneven settling.

D-1d(1)(c) Containment System Capacity: 806(4)(b)(i)(A) and (C), 630(7)(a) [270.15(a)(3), 264.175(b)(3)]

Demonstrate that each containment system will have sufficient capacity to contain 10 percent of the volume of all the containers stored within the system or the volume of the largest container within the system, whichever is greater. In making this determination, consider containers holding free liquids or wastes designated as F020, F021, F022, F023, F026, and F027. It is not necessary to consider containers holding wastes with the characteristic of ignitability or reactivity if no free liquids are present.

For uncovered areas, also demonstrate that each containment system has the additional capacity to hold the volume that would result from a maximum twenty-five year storm of twenty-four hours duration; provide the calculations used to determine the additional volume(s) resulting from the twenty-five year storm of twenty-four hour duration. For areas with automatic sprinkler systems, also demonstrate that each containment system has the additional capacity to hold 20 minutes of fire water, per Uniform Fire Code, 80.301(l)(4); include calculations to show the additional capacity needed.

For each storage area and its containment system, this demonstration must discuss the volume of largest container, total volume of containers, containment structure capacity (include drawings to show the dimensions of the secondary containment structures and other structures within the system),

and volume displaced by containers and other structures in the containment system. The demonstration must show calculations. If a storage unit consists of "cells" or "rooms" which are separated by a structure, such as a wall, berm, trench or other device which keeps spilled material from moving into other cells or rooms in the unit, then the capacity determination for each cell or room must be determined separately.

D-1d(1)(d) Control of Run-on: 806(4)(b)(i)(D), 630(7)(b) [270.15(a)(4), 264.175(b)(4)]

Describe the dikes, berms, drainage system, rooms, etc., used to prevent run-on from entering the system. Conversely, request the requirement be waived, and provide calculations demonstrating that the containment system has sufficient excess capacity to contain run-on.

D-1d(2) Removal of Liquids from Containment System: 806(4)(b)(i)(E), 630(7)(a)(ii) [270.15(a)(5), 264.175(b)(5)]

Spilled or leaked waste and accumulated precipitation must be removed from sumps or collection areas in a timely manner to prevent overflow of any containment system; at a minimum, Ecology expects sumps will be emptied no later than 24 hours after detection. Describe the procedures and equipment used to remove liquids. Provide drawings and specifications of all sumps, pumps, and pipings that are part of the tank system. Specify procedures and methods for determining whether the removed material is a dangerous waste and for handling it as such, including parameters and test methods (or reference the portion of the Waste Analysis Plan that provides these procedures).

D-1e Demonstration that Containment Is Not Required Because Containers Do Not Contain Free Liquids, Wastes That Exhibit Ignitability or Reactivity, or Wastes Designated F020 - 023, F026, or F027: 806(4)(b)(ii), 630(7)(c) [270.15(b)(2), 264.175(c)]

Demonstrate that the storage area will hold only containers do not contain free liquids, wastes that exhibit ignitability or reactivity, or wastes designated F020 - 023, F026, or F027. Describe how the storage area is sloped or designed and operated to drain and remove liquids resulting from precipitation. Conversely, show containers are elevated or otherwise kept from contact with standing liquids.

Note: WAC 173-303-804(4)(b)(ii)(A) requires the application to include a demonstration, including test procedures and results or other documentation or information, to show the wastes do not contain free liquids. Present this demonstration in Section C. Waste Analysis, both under C-1, *Chemical, Biological and Physical Analyses*, and under C-2a(1), *Waste Analysis Plan, Detailed Chemical, Physical, and/or Biological Analysis, Parameters and Rationale*.

D-1f Prevention of Reaction of Ignitable, Reactive, and Incompatible Wastes in Containers

D-1f(1) Management of Certain Reactive Wastes in Containers: 806(4)(b)(iv), 630(8)(a) [270.15(c), 264.176]

Provide sketches, drawings, or data demonstrating that containers of reactive waste exhibiting a characteristic specified in WAC 173-303-090(7) (vi), (vii) or (viii) are stored in a manner equivalent to the Uniform Fire Code's *American Table of Distance for Storage of Explosives*, Table 77-201, 1979 edition or the version adopted by the local fire district. Design drawings must be certified by a professional engineer.

D-1f(2) Management of Ignitable and Certain Other Reactive Wastes in Containers: 806(4)(b)(iv), 630(8)(b) [270.15(c), 264.176]

Provide sketches, drawings, or data demonstrating that container storage of ignitable waste and reactive waste (other than a reactive waste covered by D-1g(1)) is designed, operated, and maintained in a manner equivalent with the Uniform Fire Code (UFC). Where no specific standards are specified in UFC, or in existing state or local fire codes, use applicable sections of the NFPA Pamphlet #30, Flammable and Combustible Liquid Code. Design drawings must be certified by a professional engineer.

D-1f(3) Design of Areas to Manage Incompatible Wastes: 806(4)(b) (iv), 630(9)(c) [270.15(c), 264.177]

Through sketches, drawings, and/or data, demonstrate that a container holding a dangerous waste that is incompatible with any waste or other materials stored nearby in other containers or open tanks will be separated from the other materials or protected from them by means of a dike, berm, wall or other device. Also provide sketches, drawings, or data to document that containment systems for incompatible wastes are separate. Indicate on the drawings the areas in which incompatible wastes will be stored. Note that the Uniform Fire Code (UFC) requires incompatible hazardous materials be separated by a distance of not less than 20 feet, isolated by a noncombustible partition extending not less than 18 inches above and to the sides of the stored material, or stored in hazardous materials storage cabinets (see UFC 80.301(n)). Design drawings must be certified by a professional engineer.

D-2 Tank Systems

806(4)(c), 640, 395(6) [270.16, 264.190 through 264.199, 264.1030 through 264.1065]

Sections D-2 will be incorporated into the facility's final status permit. A manual is available from Ecology to assist with assessing and certifying tank systems. It is entitled *Guidance for Assessing and Certifying Tank Systems that Store and Treat Dangerous Waste*, Ecology publication number 94-114.

D-2a Design, Installation and Assessment of Tank Systems:
806(4)(c)(i),(ii),(v), and (vi), 640(2) and (3) [270.16(a), (b), (e), and (f), 264.191, 264.192]

D-2a(1) Design Requirements: 640(2)(c), (3)(a) [264.191(b), 264.192(a)]

Provide design specifications that demonstrate tank(s) and ancillary equipment will not collapse or rupture, including consideration of earthquake stresses. Required specifications include materials of construction; lining or coating materials; tank dimensions; tank capacity; actual and minimum acceptable shell thickness; materials and equipment to ensure corrosion protection; connections; pressure controls; and design and materials of construction of the foundation, structural support, and seams. Provide drawings and engineering calculations to demonstrate adequate design. Include references to design standards or other available information used in design and construction of tanks and ancillary equipment.

Identify all waste type(s) managed in each tank system and all uses of the tank system (e.g., all treatment and storage activities). Submit information ensuring the tank system is designed for all intended uses considering, at a minimum, compatibility with the waste(s), structural strength, and corrosion protection.

D-2a(2) Integrity Assessments: 640(2)(a), (c) and (e); (3)(a), (b) and (g) [264.191(a) and (b) 264.192(a), (b), and (g)]

Submit a written assessment certified by an independent professional engineer that attests to adequate design and integrity of the tank(s) and ancillary equipment ensuring they will not collapse, rupture or fail over the intended life considering intended uses. At a minimum, the assessment must document consideration of the following: adequacy of and compliance with the design standards (including minimum shell thicknesses) used for the tank system; dangerous characteristics of the wastes managed; corrosion protection; age of the tank system; and results of leak tests, internal inspections, and other integrity examinations.

Under F-2d(2)(a), provide a schedule for additional integrity assessments over the intended life of the tank system to ensure it will not collapse, rupture, or fail. The schedule must be supported by any past integrity assessments, age and condition of the tank system, materials of construction, characteristics of the wastes managed, actual and estimated corrosion rates, and other relevant information.

D-2a(3) Additional Requirements for Existing Tanks:
640(2)(a) and (c)(v) [264.191(a) and (b)(5)]

As part of the integrity assessment certifying the system, document that existing shell thicknesses meet or exceed minimum acceptable thicknesses, and that corrosion protection measures are adequate. Demonstrate the following were evaluated and found acceptable for ongoing use of the tank system: results of leak tests, internal inspections, or other integrity examinations; characteristics of the wastes managed; and the intended uses of the tank and ancillary equipment. Specify actual or estimated corrosion and erosion rates, as appropriate. Demonstrate the existing schedule for additional integrity assessments is adequate considering results of the current assessment.

D-2a(4) Additional Requirements for New Tanks:

640(3)(c), (e), (f) and (g) [264.192(b), (d), and (e)]

Describe proper handling procedures to prevent damage during tank system installation. Include procedures for testing for tightness; protection of ancillary equipment against physical damage and stress; and inspection of the installation by an independent, qualified, registered professional engineer. At a minimum the independent inspection must document the presence of any of the following: weld breaks; punctures; scrapes of protective coatings; cracks; corrosion; and other structural damage, or inadequate construction or installation. Provide assurance that installation of corrosion protection systems that are field fabricated will be supervised by an independent corrosion expert. The independent inspections must document actions taken to remedy any problems encountered during installation, or document that the tank and corrosion protection system were not damaged during installation.

Document that the type and degree of corrosion protection recommended by an independent corrosion expert will be provided.

D-2a(5) Additional Requirements for New On-ground or Underground Tanks:

640(3)(a)(iii), (iv), and (v); 640(3)(d) [264.192(a)(3), (4), and (5), and (c)]

Demonstrate that tank system assessment by an independent corrosion expert accounts for conditions of the soil and underground environment when evaluating the adequacy of corrosion protection. Demonstrate design of the tank system and its foundation are adequate to support the full tank and any surface load (e.g., vehicular traffic). Demonstrate that suitable backfill will be used and its placement will provide adequate support of the tank system. Demonstrate protection against floatation or dislodgement due to soil saturation, seismic forces and frost heave.

D-2b Secondary Containment and Release Detection for Tank Systems: 640(4), 806(4)(c)(vii) [270.16(g), 264.193]

D-2b(1) Requirements for All Tank Systems

- (a) Provide information, *including material specifications, detailed design drawings, design evaluations, design calculations and documentation of all assumptions*, demonstrating that secondary containment systems are:
 - (i) Placed on a foundation capable of supporting the tank system and any equipment operating in the tank system, resisting pressure gradients above and below the system, and preventing failure due to settlement, compression, or uplift. Describe foundation preparation, design, and construction procedures to control cracking due to uneven settlement;
 - (ii) Constructed of or lined with materials compatible with waste(s) placed in the tank system;
 - (iii) Constructed with sufficient strength and thickness to prevent failure from pressure gradients (including static head and external hydrological forces), physical contact with the waste, climatic conditions, and stresses of daily operations (e.g. vehicular traffic);

- (iv) Provided with a leak-detection system designed and operated to detect failure of either the primary or secondary containment structure or the presence of any release of dangerous waste or accumulated liquid within twenty-four hours (or at the earliest practicable time if the owner or operator can demonstrate that existing detection technologies or site conditions will not allow detection of a release within twenty-four hours);
 - (v) Sloped or otherwise designed or operated to drain and remove liquids resulting from leaks, spills, or precipitation. Ensure the design provides assurance that spilled or leaked waste and accumulated precipitation can be removed from the secondary containment system within twenty-four hours (or in as timely a manner as is possible to prevent harm to human health and the environment, if it can be demonstrate that removal of the released waste or accumulated precipitation cannot be accomplished within twenty-four hours); and
 - (vi) Constructed and operated so run on from a 25 year, 24 hour storm will be excluded from the system, unless sufficient excess volume is provided by the system to contain such run on.
- (b) Document with material specifications, design drawings, and calculations, as appropriate, that:
- (i) All concrete secondary containment systems will be free of cracks or gaps, constructed with chemical-resistant water stops at all joints, and provided with an impermeable coating or lining compatible with the waste managed in the area. Provide location and design of expansion and control joints used to control cracking;
 - (ii) Secondary containment systems, excluding double walled tanks, have sufficient volume to contain contents of the largest tank in the system plus any precipitation which could enter the system from a 25 year, 24 hour storm; and
 - (iii) All areas with automatic sprinkler systems have additional capacity to contain 20 minutes of fire water, per Uniform Fire Code, 80.301(1)(4).

D-2b(2) Additional Requirements for Specific Types of Systems

In addition to the requirements in D-2b(1), demonstrate the additional requirements for vault systems, double wall tanks, and ancillary equipment are satisfied.

D-2b(2)(a) Vault Systems: 640(4)(e)(ii) [264.193(e)(2)]

Demonstrate a means to protect against the formation and ignition of vapors if ignitable (WAC 173-303-090(5)) or reactive (WAC 173-303 -090(7)) wastes are managed within the vault. Provide an exterior moisture barrier or otherwise prevent migration of moisture into the vault if the vault is subject to hydrostatic pressure. In addition to showing the system is designed or operated to prevent run-on, also show the system is designed or operated to prevent *infiltration* of precipitation into the secondary containment system unless the collection system has sufficient excess capacity to contain the run-on and infiltration. The excess capacity must be sufficient to contain precipitation from a twenty-five-year, twenty-four-hour rainfall event.

D-2b(2)(b) Double-walled Tanks: 640(4)(e)(iii) [264.193(e)(3)]

Demonstrate that the inner tank is completely enveloped within the outer shell, corrosion protection is provided for both the inner and outer shells if these are constructed of metal, and a built-in continuous leak detection system capable of detecting a release within 24 hours is included between the walls.

D-2b(2)(c) Ancillary Equipment: 640(4)(f) [264.193(f)]

Provide secondary containment, or provide assurance that equipment meets design requirements and other conditions in WAC 173-303-640(4)(f) and will be inspected daily.

D-2c Variances from Secondary Containment Requirements:

640(4)(g) and (h), 640(1)(b) and 806(c)(viii) [270.16(h), 264.193(g) and (h), 264.190(a)]

If requesting a variance, provide a detailed demonstration on how alternate design and operating practices will prevent migration of dangerous wastes or constituents to the ground water or surface water at least as effectively as secondary containment during the active life of the tank. Alternatively, demonstrate that a release that migrates to the ground water or surface water would not pose a substantial threat to human health or the environment.

If claiming a tank system is exempt from secondary containment requirement because wastes contain no free liquid, demonstrate tank system is within a building with an impermeable floor and provide procedures to ensure all wastes entering the tank system will contain no free liquids by using the paint filter test (SW-846 Test Method 9055).

D-2d Tank Management Practices: 806(4)(c)(iii),(iv),(ix); 640(5)(a) and (b) [270.16(c), (d), and (i), 264.194(a) and (b)]

Provide operational controls to ensure waste or treatment agents that could cause a tank system to rupture, leak, corrode or otherwise fail will not be placed in such systems.

Describe the operating practices and controls used to prevent overfilling (e.g., feed cut-off system, pressure controls, or bypass system to a standby tank) and to maintain sufficient freeboard to prevent overtopping of uncovered tanks by wave or wind action or by precipitation. Provide diagrams of piping, control instrumentation and process flow. Provide descriptions of the procedures for the treatment of dangerous waste in tanks, if applicable.

D-2e Labels or Signs: 806(4)(c)(xi), 395(6), 640(5)(d)

Demonstrate that all tanks holding dangerous waste will be marked with labels or signs to identify the waste contained, and major risks associated with the wastes. Demonstrate that labels or signs will be visible from at least fifty feet away.

D-2f Air Emissions: 806(4)(c)(xii), 640(5)(e)

For each tank system holding dangerous wastes which are acutely or chronically toxic by inhalation, demonstrate the system is designed to prevent escape of vapors, fumes or other emissions into the air. Include design diagrams, calculations and data used for designing emission control devices.

See D-8 for the federal requirements for control of emissions from process vents, equipment leaks, and tanks.

D-2g Management of Ignitable or Reactive Wastes in Tank Systems: 806(4)(c)(x), 640(9) [270.16(f), 264.198]

Demonstrate compliance with National Fire Protection Association's buffer zone requirements for tanks (i.e., in NFPA-30), or other more stringent state and local buffer zone requirements.

D-2h Management of Incompatible Wastes in Tank Systems: 806(4)(c)(x), 640(10) [270.16(f), 264.199]

Demonstrate design of tank system(s) prevent incompatible wastes and materials from being placed within the same tank system (including accidental releases to secondary containment areas), unless compliance with WAC 173-303-395(1)(b) is ensured.

D-3 Waste Piles

D-4 Surface Impoundments

D-5 Incinerators

D-6 Landfills

D-7 Land Treatment

D-8 Air Emissions Control

806(4)(j) and (k), 110 (test methods), 690, 691 [270.24, 270.25, Part 264 Subparts AA, BB, and CC]⁷

Facilities must demonstrate compliance with the air emissions control requirements of 690 (40 CFR Part 264 Subpart AA), 691 (Subpart BB), and Subpart CC, process vents, equipment leaks, and tanks and containers.⁸

All of the air emissions control portions of the application will be included in the permit *except* the following:

For process vents: D-8a(1)(b), Process Vents Not Subject to AA Standards

For equipment leaks: D-8b(2)(b), Demonstrating Compliance with

D-8b(2)(a) Procedures

7 Washington State has not adopted the CC requirements yet. The US EPA has delayed the effective date of the CC rule several times. As of June 1996, the effective date is October 6, 1996.

8 Subpart CC requirements for surface impoundments are not included because this checklist covers only tanks and containers.

Guidance Document Available. The guidance document "Hazardous Waste TSDF - Technical Guidance Document for RCRA Air Emission Standards for Process Vents and Equipment Leaks," EPA 450-3-89-021, July, 1990, is available from NTIS as document number PB90-263880. It discusses equipment design, provides estimates of the effectiveness of various control devices and methods, and contains checklists for equipment design elements.

D-8a Process Vents:

806(4)(j), 110, 690 [270.24, 264.1030 - 264.1035 (Subpart AA)]

Facilities must limit or reduce organic emissions from *process vents* associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations that manage hazardous wastes with organic concentrations of at least 10 parts per million by weight (ppmw). Process vents associated with recycling units having these operations⁹ are also subject to the requirements. These process vents are called *affected vents* throughout the rest of D-8a.

D-8a(1) Applicability of Subpart AA Standards: 690 [270.24(b), 264.1030, 264.1034(d), 264.1035(b)(2)]

D-8a(1)(a) Process Vents Subject to AA Standards

- (i) Identify all affected vents, including affected vents associated with recycling units. For example, show their locations on piping and instrumentation diagrams;
- (ii) Describe the location within the facility of each treatment and recycling unit with affected vents. These units are called *affected units* throughout the remainder of D-8a; and
- (iii) Provide the annual throughput and operating hours for each affected unit.

D-8a(1)(b) Process Vents Not Subject to AA Standards

Identify any process vents which you believe are not subject to Subpart AA limits and provide support for your determination. For each of these vents:

- (i) Identify the vent and the unit in which it is located; and
- (ii) Show one of the following:
 - (A) Time weighted average annual organic concentration of wastes fed to unit is below 10 ppmw. Follow the procedures in §264.1034(d)(1)(i)-(iv) and:
 - Provide the calculated time-weighted, annual average concentration of total organics in wastes fed to the unit. Identify which of the following SW-846 methods was used to determine the total organic concentration¹⁰: 9060, total organic carbon, or 8240, gas chromatography/mass spectrometry for volatile organic compounds; and

9 Hazardous waste recycling units are exempt from the Subpart AA standards if the *facility* is not subject to the permitting requirements of 40 CFR Part 270.

10 The federal rules use the terms "total organic concentration" and "total organic compounds" interchangeably.

- Provide information supporting the determination. Include waste analysis data for waste streams, annual quantities of each waste stream processed, calculations, sample collection information such as sampling point and preservation methods, and the SW-846 method used to determine the "total organic concentration"; or
- (B) Organic concentration of *each* waste stream fed to unit is less than 10 ppmw.
- Provide documentation showing that each waste stream fed into the unit has an organic concentration of less than 10 ppmw. See §264.1034(d)(2) for examples of acceptable documentation; and
 - If waste analysis data is used to determine the organic concentration, identify the SW-846 method used -- 9060, total organic carbon, or 8240, gas chromatography/mass spectrometry for volatile organic compounds; or
- (C) No federal hazardous wastes managed. Show that only "state-only" wastes are managed in the unit. "State-only" wastes designate as dangerous wastes under Chapter 173-303 WAC and not as "hazardous wastes" under 40 CFR Part 261.

When Ecology adopts the Subpart AA standards, units managing state-only wastes may be required to meet the Subpart AA standards. This issue has not been evaluated yet by Ecology staff. Any proposed rule change will go through public review.

D-8a(1)(c) Re-evaluating Applicability of Subpart AA Standards: 690 [270.24(b)(3), 264.1030]

Describe circumstances and criteria that will prompt a re-evaluation of the applicability of the Subpart AA emission limits/reductions to facility operations. Describe the procedures for re-evaluation, referencing the Waste Analysis Plan, C-2, as appropriate. At a minimum, include:

- (i) An annual re-evaluation¹¹ of the organic concentration of "continuously generated" wastes (this includes wastes that are routinely generated through a batch process). Describe what documentation will be used to support the determination that organic concentrations are below the limit. Documentation may include MSDS, waste analysis data, or process description, see §264.1034(d)(2); and
- (ii) Provide for re-evaluating the determination whenever there is a change in the waste being managed in the unit or a change in the process that generates or treats the waste.

D-8a(2) Process Vents - Demonstrating Compliance: 806(4)(j), 110, 690 [270.24, 264.1030 - 264.1035]

In this section, the term *affected vent* means the process vents identified under D-8a(1)(a)(i), and *affected unit* means the units identified under D-8a(1)(a)(ii).

11 Note that the Dangerous Waste Rules have minimum requirements for repeating the detailed analysis of each waste stream managed at the facility. Information from the detailed analysis may be used to support the determinations required by §264.1034(e)(2) and (e)(3).

D-8a(2)(a) The Basis for Meeting Limits/Reductions:

806(4)(j)(ii), 110, 690 [270.24(b), 264.1032, 264.1034(c), 264.1035(b)(2) and (b)(3)]

Describe the basis for meeting the Subpart AA emission limits or reductions. Choose one of the following four methods. The next checklist subsection describes what to provide to demonstrate compliance with the selected method.

- (i) Meet limits without air pollution control devices. To successfully use this method, the *total* air emissions from all affected vents at the facility must not exceed the *emissions thresholds* when equipment is operated without add-on air emissions control devices. The emissions thresholds are 1.4 kg/h (3 lb/h) and 2.8 Mg/yr (3.1 tons/yr).
- (ii) Meet limits with air pollution control devices. To successfully use this method, the *total* air emissions from all affected vents at the facility must not exceed the *emissions thresholds* when equipment is operated with add-on air emissions control devices.
- (iii) Demonstrate a 95 weight percent reduction in emissions as shown via manufacturer's specifications. To successfully use this method, manufacturer's specifications for add-on air pollution control devices must show a 95 weight percent, or more, reduction in emissions. In addition, the facility must show it operates within the specifications. Provide engineering literature to support the statement of 95 weight percent reductions. The reduction may be shown for each affected vent or for the total emissions for all affected vents at the facility ("facility-wide emissions").
- (iv) Demonstrate a 95 weight percent reduction in emissions via testing or estimating emissions and calculating reductions. To successfully use this method, testing or estimating facility emissions with add-on air pollution control devices in place must show emissions will be reduced by 95 weight percent or more. The reduction may be shown for each affected vent or for facility-wide emissions.

D-8a(2)(b) Demonstrating Compliance via Selected Method

806(4)(j)(ii), 110, 690 [270.24(b), 264.1032, 264.1034(c), 264.1035(b)(2) and (b)(3)]

Show the facility meets emission limits or reductions by providing the information described below in (i) through (iv) for the compliance method selected under D-8a(2)(a). For the demonstration, use operating parameter values (e.g., temperatures, flow rates, or concentrations) that represent the conditions that result in the maximum organic emissions. Generally, this will be when the waste management unit is operating at the highest load or capacity level reasonably expected to occur. The requirements for detailed design and operating information and the parameters for control devices and closed vent systems are described under D-8a(2)(c). When providing emission rates or reductions:

- If *engineering calculations* are used, describe the assumptions and provide the calculations; and
 - If *source tests* are used, demonstrate the methods detailed in §264.1034(c) were followed. Provide data and calculations and describe or show the location of sampling ports (e.g., on piping diagrams).
- (i) Meets limits without air pollution control devices. To make this demonstration, provide measured or calculated emission rates *for each affected vent* and the total emissions *for all affected vents* at the facility.

- (ii) Meet limits with controls. To make this demonstration, provide measured or calculated emission rates *for each affected vent* and the total emissions *for all affected vents* at the facility with air emission control devices in place. *It is not necessary to provide emission measurements or calculations for these same vents without control devices.*
- (iii) Meets limits by demonstrating a 95 weight percent reduction in emissions as shown via manufacturer's specifications. Describe each air emission control device that will be used for affected units at the facility and provide the manufacturer's specifications for the device. Include the manufacturer's name and the model number(s) of the control device(s). For each affected *unit*:
 - (A) Identify which device(s) will be used for each affected unit; and
 - (B) Provide support that waste stream(s) entering the unit and the unit's operating conditions meet the specifications. For example, describe how the physical and chemical characteristics (e.g., volatility) of waste streams placed in the unit meet specifications for the device; describe parameters for distillation, fractionation, thin-film evaporation, solvent extraction, and/or air or steam operations in the unit (e.g., operating temperatures and flow rates).
- (iv) Meet limits by demonstrating a 95% reduction in emissions via testing or by estimating emissions and calculating reductions. To show that add-on emissions control devices achieve the 95 weight percent reduction requirements, provide data for both controlled and uncontrolled emissions:
 - (A) Identify which of the following two approaches is being used:
 - *Facility-wide* emissions are reduced by 95 weight percent; or
 - The emissions *for each affected vent* have been reduced by 95 weight percent.
 - (B) Provide estimates of emission rates *without air emission control devices.* Provide measured or calculated emission rates *for each affected vent*, if showing reduction for each vent, or the total emissions *for all affected vents* at the facility, if showing a *facility-wide* reduction.
 - (C) Estimate emissions *with emission control devices.* Provide measured or calculated emission rates *with air emission control devices* for each affected vent, if showing reduction for each vent, or the total emissions for all affected vents at the facility, if showing a facility-wide reduction.

D-8a(2)(c) Design Information and Operating Parameters for Closed Vent Systems and Control Devices: 806(4)(j)(iv), 110, 690 [270.24(d), 264.1032(b), 264.1033, 264.1034, 264.1035(b)(3) and (b)(4), 264.1035(c)]

Provide information on design, operation, and monitoring devices for add-on control devices and closed vent systems to demonstrate compliance with the standards in §264.1033. Include:

- (i) A list of all information references and sources used in preparing the documentation;
- (ii) Records, including the dates, of each compliance test required by §264.1033(k);
- (iii) A design analysis, specifications, drawings, schematics, and piping and instrumentation diagrams based on the appropriate sections of "APTI Course 415: Control of Gaseous

- Emissions".¹² The design analysis must address the vent stream characteristics and control device operation parameters discussed in §264.1035(b)(4)(iii)(A) through (G). Documentation provided by the vendor or manufacturer of the device may be used if it provides the required information;
- (iv) Operating parameters and monitoring devices. Provide the following information. Documentation provided by the vendor or manufacturer of the device may be used if it provides the required information.
 - (A) Identify specific operating parameters and parameter values/ranges that will be used to monitor control device performance. They must be consistent with §264.1033, including (f), monitoring requirements, and §264.1035(c); and
 - (B) Describe monitoring devices used to monitor parameters identified in (iv)(A) above. Provide a diagram(s) of monitoring sensor locations used to comply with §264.1033(f)(1) and (f)(2).
 - (C) To propose an alternate parameter for monitoring, describe the control device, the affected unit it is in, and the parameter(s) proposed for monitoring. Show that the parameter(s) will ensure the control device is operated to meet the emission limits/reductions and the control device's design specifications. Describe the device(s) that will be used to monitor for the parameter and show where they will be installed (§264.1033(i));
 - (v) Procedures in the appropriate sections of the application¹³ to ensure the assumptions in the emissions limit/reduction calculations are not violated; e.g., in the Waste Analysis and Inspection Plans. Briefly describe the procedures here and provide a reference to the appropriate sections of the application;
 - (vi) A statement signed and dated by the owner or operator certifying that *the operating parameters used in the design analysis reasonably represent the conditions that exist when the hazardous waste management unit is or would be operating at the highest load or capacity level reasonably expected to occur*; and
 - (vii) A statement signed and dated by the owner or operator certifying that *the control device is designed to operate at an efficiency of 95 weight percent or greater unless the total organic concentration limit of §264.1032(a) is achieved at an efficiency less than 95 weight percent or the total organic emission limits of §264.1032(a) for affected process vents at the facility can be attained by a control device involving vapor recovery at an efficiency less than 95 weight percent*. A statement provided by the control device manufacturer or vendor certifying that the control equipment meets the design specifications may be used to comply with this requirement.

12 To use information in other engineering texts, request approval from the reviewing agency. To request approval, describe the text you wish to use, including which sections.

13 These procedures will be included in the permit.

D-8a(2)(d) Re-evaluating Compliance with Subpart AA Standards: 806(4)(j)(ii), 690 [270.24(b), 264.1030, 264.1035(b)(2)]

Describe circumstances and criteria that will prompt a re-evaluation of the facility's compliance with the air emission limits/reductions. Describe the procedures for re-evaluation. Include:

- (i) Data sources to be used;
- (ii) Assumptions about maximum operating capacity;
- (iii) Criteria for recalculating emissions (e.g., add vent, remove vent, change operating hours, manage waste of a different composition);
- (iv) Intervals for recalculating emissions to check whether they are under the threshold limits or meet reduction requirements (e.g., annually); and
- (v) For cases where performance testing will be used to check limits or reductions or to ensure standards in §264.1033 are being met, the performance test plan as required by §264.1035(b)(3).

D-8b Equipment Leaks:

806(4)(k), 110, 690, 691 [270.25, 264.1050 - 264.1064, 264.1033, 264.1034(c), 264.1035(b) and (c)]

The equipment leak detection and repair standards in Part 264 Subpart BB, Equipment Leaks, apply to equipment that contains or comes into contact with waste with a total organic concentration of 10 percent by weight,¹⁴ or more. They are designed to reduce emissions from valves, pumps, compressors, pressure relief devices, sampling connection systems, and open-ended valves or lines. The standards apply to waste management units, recycling units, and accumulation areas.¹⁵

D-8b(1) Applicability of BB Standards

806(4)(k), 691, 110 [270.25, 264.1050, 264.1063]

D-8b(1)(a) Equipment Subject to Subpart BB

Describe procedures and criteria for evaluating equipment to determine if it is subject to the Subpart BB standards. Identify which method(s) will be used to determine organic concentration (must use one of the ASTM or SW-846 methods listed in §264.1063(d)(1) or (2) and/or knowledge of the nature of the waste streams or the process generating the waste streams). If knowledge will be used to determine the organic concentration, describe how the knowledge will be documented as required by §264.1063(d)(3). Note that D-8b(2)(a) describes the records that must be maintained to document the results of the evaluation.

14 This standard differs from the Subpart AA standard, both in the threshold concentration of total organics and in how the limit is determined. Under Subpart AA, one calculates the *annual time weighted average*; under Subpart BB, one determines the concentration without calculating the time weighted average.

15 When the federal "CC Rule" goes into effect, the Subpart BB requirements will also apply to large quantity generators (LQGs) that do not have permitted storage or treatment. Until then, the on-site recycling units and accumulation areas these LQGs have are exempt from the Subpart BB standards. See 59FR62926 12/94 for the changes to §262 extending the requirements to generator accumulation areas and on-site recycling.

For equipment to be exempt from Subpart BB standards, one of the following must be shown:

- (i) Organic concentration of the waste is below 10 percent by weight. Equipment must contain or contact wastes with total organic concentrations of less than 10 percent by weight at the point they enter the equipment. To determine organic concentration, use ASTM or SW-846 methods listed in §264.1063(d)(1) or (2) or use knowledge of the nature of the waste streams or the process generating the waste streams, documenting the knowledge as required by §264.1063(d)(3); or
- (ii) No federal hazardous wastes are managed. Show that only "State-only" wastes are contained in, or have contact with, the equipment. "State-only" wastes designate as dangerous wastes under Chapter 173-303 WAC and not as "hazardous wastes" under 40 CFR Part 261.

When Ecology adopts the Subpart BB standards, equipment managing state-only wastes may be required to meet the Subpart BB standards. This issue has not been evaluated yet by Ecology staff. Any proposed rule change will go through public review.

D-8b(1)(b) Re-evaluating the Applicability of Subpart BB Standards: 691(1), 110 [264.1063(d) - (g), 264.1064(k)]

Describe circumstances under which the facility must evaluate or re-evaluate whether equipment is subject to the Subpart BB standards. This may include changes in facility operations, changes in the process generating a waste, the presence of organic emissions when equipment is monitored according to §264.1063(c), or other circumstances.

For example, if the owner or operator takes any action (e.g., changing the process that produced the waste) that could result in an increase in the total organic content of the waste contained in or contacted by equipment determined not to be subject to the requirements in §§264.1052 through 264.1060, then a re-evaluation is required.

D-8b(2) Equipment Leaks - Demonstrating Compliance

D-8b(2)(a) Procedures for Identifying Equipment Location and Method of Compliance, Marking Equipment, and Ensuring Records are Up-to-date: 806(4)(k), 691 [270.25, 264.1050 - 264.1064]

Provide the following procedures:

- (i) Identifying equipment subject to Subpart BB standards and to mark equipment. Provide procedures to:
 - (A) Show the approximate location within the facility of equipment to which Part 264 Subpart BB applies. For example, show the equipment locations on a facility plot plan; and
 - (B) Ensure that each piece of equipment subject to Subpart BB standards is physically marked to distinguish it readily from other equipment. The system for identifying equipment must result in permanent markings that are permanently attached to each piece of equipment; and

- (ii) Ensuring records required by §264.1064 are kept and updated. [270.25, 264.1064(b), (g), (h), (j) and (k); 264.1052(d)(5)(ii); 264.1053(e)(2)]

Describe procedures for ensuring that records and logs required by §264.1064 are complete and kept up-to-date in the operating record. These records identify equipment subject to Subpart BB standards and describe the method of compliance with leak detection and repair standards. An agency inspector must be able to tell readily what is subject to subpart BB and what is not. Include procedures to:

- (A) Establish and update the information required for each piece of equipment subject to standards in Subpart BB, including:
- (I) The equipment's identification number and which hazardous waste management area the equipment is located in;
 - (II) The type of equipment (e.g., a pump or pipeline valve);
 - (III) The percent by weight of total organics in the hazardous waste stream and the state of the hazardous waste (i.e., gas, liquid, etc.) at the inlet to the equipment;
 - (IV) The hazardous waste state at the equipment (e.g., gas/vapor or liquid); and
 - (V) Method of compliance with standards in §264.1052 through 1059 (e.g., *monthly leak detection and repair* or *equipped with dual mechanical seals*).
- (B) Establish and update a log with lists of equipment identification numbers for:
- (I) All equipment subject to the standards in §§264.1052 through 1060;
 - (II) Pressure relief devices required to comply with §264.1054(a);
 - (III) Equipment in vacuum service. While §264.1064(g)(5) requires a list of identification numbers for equipment in vacuum service, §264.1050(e) states that such equipment does not have to comply with standards in §§264.1052 through 264.1059;
 - (IV) Valves subject to §264.1057(g) and (h):
 - That are designated as "unsafe to monitor" under §264.1064(h)(1); and
 - That are designated as "difficult to monitor" under §264.1064(h)(2); and
 - (V) Equipment designated "for no detectable emissions" under §§264.1052(e), 264.1053(i), and 264.1057(f). Also provide for recording the following information:
 - The designation of this equipment signed by the owner or operator; and
 - For existing facilities, the results from the most recent compliance test(s) required under §§264.1052(e), 264.1053(i), and 264.1057(f), including the dates of the test, background level measured, and the maximum instrument reading at the equipment.
- (C) Establish and update a log for pumps and compressors with dual mechanical seal systems (§264.1052(d) and §264.1053(e)) that includes recording for each pump and compressor:

- (I) The criteria that indicates failure of the seal system, the barrier fluid system, or both (see §264.1052(d)(5)(ii) and §264.1053(e)(2)); and
 - (II) Any changes to these criteria and the reasons for the changes.
- (D) Establish and update a log with two lists of valves subject to §264.1057(g) and (h):
 - (I) For each valve designated as "unsafe to monitor," its identification number, an explanation of why the valve is unsafe to monitor, and the plan for monitoring the valve; and
 - (II) For each valve designated as "difficult to monitor," its identification number, an explanation of why the valve is difficult to monitor, and the plan for monitoring the valve;
- (E) Establish and update inspection logs to include equipment subject to Subpart BB standards, including identification and repair of leaking equipment; and
- (F) Establish and update a log for recording the following information on equipment you believe is exempt from the Subpart BB requirements:
 - (I) For each unit with equipment you believe is exempt:
 - An analysis determining the design capacity of the hazardous waste management unit in which the equipment is located; and
 - A statement listing the hazardous waste influent to and effluent from the hazardous waste management unit and an analysis determining whether these hazardous wastes are heavy liquids.
 - (II) For each piece of equipment you believe is exempt, an up-to-date analysis and supporting information and data used to make the determination. Include supporting documentation required by §264.1063(d)(3) when application of the knowledge of the nature of the hazardous waste stream or the process by which it was produced is used.

D-8b(2)(b) Demonstrating Compliance with D-8b(1)(a) and (2)(a) Procedures: 806(4)(k), 691 [270.25, 264.1050 - 264.1059]

Demonstrate implementation of the procedures in D-8b(1)(a) and (2)(a) by providing the following:

- (i) Description of which management or recycling units have equipment to which Part 264 Subpart BB applies, including the approximate location within the facility of each of these units; and
- (ii) The records, logs, lists, and facility plot plan described under D-8b(2)(a)(iii)(A) through (F) identifying equipment subject to Subpart BB standards, method of compliance with leak detection and repair standards, and equipment exempt from the standards.

Note that any permit issued for the facility will require this information to be kept in the operating record and updated as necessary. The procedures in D-8b(1)(a) and (2)(a) will be in the permit.

D-8b(2)(c) Closed Vent Systems or Control Devices: Showing Compliance with Emission Reduction Standards: 806(4)(k), 110, 690, 691 [270.25, 264.1033-264.1035, 264.1052-264.1055, 264.1059, 264.1060, 264.1063]

Facilities may use closed vent systems and emission control devices to avoid or reduce the leak detection and repair requirements in §§264.1052 through 264.1055 and in §264.1059. To use closed vent systems and control devices, demonstrate the systems and devices reduce emissions by at least 95 weight percent, provide information on their design and operating parameters, and provide information on devices to monitor operation as required under §264.1033.

- (i) Identifying Closed Vent Systems and Control Devices.
 - (A) Identify each piece of equipment subject to Subpart BB standards for which a closed vent system and emissions control device will be used to reduce emissions. Show where this equipment is; e.g., show their locations on equipment diagrams;
 - (B) Describe the location within the facility of each waste management unit with such equipment. For example, identify the units on a facility plot plan; and
 - (C) Provide the annual throughput and operating hours of *each unit*.
- (ii) The Basis for Showing Compliance with Standards. Describe the basis used to show compliance with emission reduction standards. Choose one of the following two methods:
 - (A) Demonstrate a 95 weight percent reduction in emissions as shown via manufacturer's specifications. To successfully use this method, manufacturer's specifications for add-on air pollution control devices must show a 95 weight percent, or greater, reduction in emissions, and the facility must operate within the specifications.
 - (B) Demonstrate a 95 weight percent reduction in emissions via testing or estimating emissions and calculating reductions. To successfully use this method, testing or estimating facility emissions with add-on air pollution control devices in place must show emissions will be reduced by 95 weight percent or more.
- (iii) Demonstrating Compliance via Selected Method. Show the facility meets emission limits or reductions by providing the information described below for the compliance method selected under D-8b(2)(c)(ii). For the demonstration, use operating parameter values (e.g., temperatures, flow rates, or concentrations) that represent the conditions that result in the maximum organic emissions. Generally, this will be when the waste management unit is operating at the highest load or capacity level reasonably expected to occur.
 - (A) Meets limits by demonstrating a 95 weight percent reduction in emissions as shown via manufacturer specifications. Describe each air emission control device that will be used for equipment subject to Subpart BB and provide the manufacturer's specifications for the device (any photocopies must be readable). Include the manufacturer's name and the model number(s) of the control device(s). For each *unit* with such equipment:

- (I) Identify which device(s) will be used; and
 - (II) Provide support that waste stream(s) entering the unit and the unit's operating conditions will meet the specifications. For example, describe how the physical and chemical characteristics (e.g., volatility) of waste streams placed in the unit meet specifications for the device; describe parameters for distillation, fractionation, thin-film evaporation, solvent extraction, and/or air or steam stripping operations in the unit (e.g., operating temperatures and flow rates).
- (B) Meet limits by demonstrating a 95% reduction in emissions via testing or estimating emissions and calculating reductions. To show that add-on emissions control devices achieve the 95 weight percent reduction requirements, provide data for both controlled and uncontrolled emissions:
- (I) Provide estimates of emission rates *without air emission control devices*. Provide measured or calculated emission rates *for each piece of equipment*.
 - If *engineering calculations* are used, describe the assumptions and provide the calculations;
 - If *source tests* are used, demonstrate the methods detailed in §264.1034(c) were followed and describe the performance test plan. For each affected unit, the performance test plan must include information described in §264.1035(b)(3); and
 - Include any other information and data supporting the emission estimates.
 - (II) Estimate emissions *with emission control devices*. Provide measured or calculated emission rates *with air emission control devices* for each piece of equipment.
Provide the support described in (I) above for engineering calculations or source tests.
 - (III) Demonstrate the weight percent reduction achieved by add-on air emissions control devices. Provide calculations using the data from (I) and (II) above to show the weight percent reduction achieved by control devices for *each piece of equipment*.
- (iv) Design Information and Operating Parameters for Closed Vent Systems and Control Devices: [270.25(e), 264.1060, 264.1064(b)(3), 264.1064(e), 264.1033, 264.1034, 264.1035(b)(3) and (b)(4), 264.1035(c)]

Provide information on design, operation, and monitoring of add-on control devices and closed vent systems to demonstrate compliance with the standards in §264.1033. Include all the information described in D-8a(2)(c).

D-8c Tanks and Containers

[270.27, 270.15, 270.16, Part 264 Subpart CC]

Facilities must install and operate organic emission controls for containers with a design capacity of over 0.1 m³ (26 gallons) and for tanks if hazardous waste having an average volatile organic concentration equal to or more than 100 parts per million by weight is placed in the tank or container.

US EPA adopted these air emission standards in December 1994. Facilities must meet the requirements as of June 1995. This guidance document will be revised to include more detailed direction on what documentation to provide. Until the guidance is updated, follow the requirements in the rule which was published in 59FR 62896.

D-8c(1) Applicability of Subpart CC Standards: [264.1080, 264.1082]

Identify the tanks and the container areas subject to the Subpart CC standards. Identify any tanks or container areas which you believe are not subject to Subpart CC standards and provide support for the determination. If you believe there are exempt tanks or container areas at the facility, provide procedures in the Waste Analysis Plan for the analyses necessary to make the exemption determinations.

D-8c(2) Tanks Systems and Container Areas - Demonstrating Compliance

Provide the documentation required by §270.27(a)(1) - (a)(3) and (a)(5) - (a)(6).

D-9 Waste Minimization

[264.73(b)(9), 264.75(h) and (i)]

Provide a copy of a site-specific Waste Minimization Plan for the facility. Include facility-specific procedures and programs to reduce the volume and toxicity of hazardous waste to the extent economically practicable, and to minimize the present and future threat to human health and the environment. *This is a federal requirement; US EPA Region 10 staff will review the Plan.*

Providing the Waste Minimization Plan with the application enables EPA to provide comments and recommendations so the facility is guided toward adoption of a program which meets the waste minimization requirements of 40 CFR 264.73 by the time a permit is issued. Once a permit is issued, EPA may review the facility's waste minimization plan to ascertain compliance with the intent of the waste minimization requirements in 40 CFR 264.73 and 264.75.

If the facility has prepared a Pollution Prevention Plan for the State of Washington in accordance with Chapter 70.95C RCW, the Hazardous Waste Reduction Act, and Chapter 173-307, submit it for verification before preparing a separate Waste Minimization Plan. The Pollution Prevention Plan may fulfill most or all of the requirements for a Waste Minimization Plan if it adequately addresses EPA's recommendations for an effective program; see the first guidance document listed below.

Any permit issued for a facility will contain requirements for a periodic certification of waste minimization activities according to §264.73; it will not contain the Waste Minimization Plan.

The following documents are available to guide development of the Plan:

- EPA's recommendations for an effective "program in place" published in 54 Federal Register (FR) 25056 (June 12, 1989); it provides draft guidance on the elements of a waste minimization program.
- "Facility Pollution Prevention Guide, EPA/600/R-92/088, May 1992. This replaces the old "Waste Minimization Opportunity Assessment Manual," dated July, 1988 (EPA/625/7-88/003).

- "Waste Prevention Pays Off: Companies Cut Waste in the Workplace," EPA530-K-92-005 (order from RCRA Hotline at 1-800-424-9346).
- "Business Guide for Reducing Solid Waste," EPA530-K-92-004 (order from RCRA Hotline at 1-800-424-9346).
- "Guidance to Hazardous Waste Generators on the Elements of a Waste Minimization Program -- Interim Final", **FR** 31114, May 28, 1993

E. Releases from Solid Waste Management Units

806(4)(a)(xxiv), 645, 646 [270.14(d)]

Facilities must identify locations where solid wastes have been or are managed, and provide information on known and suspected releases of dangerous wastes and/or dangerous constituents. Also, facilities must describe work completed under a RCRA Section 3008(h), 7003, or 3013 order; the EPA Superfund program; a Model Toxics Control Act (MTCA) order; or an independent cleanup.

Information provided in this section of the application will assist Ecology in assessing the need for corrective action at the facility or portions of the facility. The facility permit will include specific requirements for corrective action along with a schedule for completing corrective action activities.

Please summarize the information from detailed reports and facility records in the application. Presenting the summary information in tables is encouraged.

E-1 Solid Waste Management Units and Known and Suspected Releases of Dangerous Wastes or Constituents

The following information requirements relate to the entire facility. For corrective action, the definition of *facility* includes *all contiguous property under the control of the facility owner and/or operator*. The facility owner is the entity that owns the property on which the facility is located. This may mean that some of the solid waste management units at your *facility* may be outside areas you usually consider when preparing the permit application. For example, if the facility operator leases a site from an industrial park, then for the purposes of corrective action, the *facility* is the entire industrial park and any adjacent property also owned by the industrial park.

E-1a Solid Waste Management Units

Provide information on each solid waste management unit at the facility, even if the unit may not pose a threat to human health or the environment. Ecology needs the information to make an accurate evaluation of corrective action requirements at the facility. A *solid waste management unit* is any discernible location where solid waste has been placed at any time, even though the location may not have been intended for the management of solid or dangerous waste. *Solid waste* is any material you have discarded, intend to discard, or are accumulating, storing, treating, incinerating, or recycling instead of discarding. By definition, solid waste includes liquids, sludges, and contained gases. Waste management units typically exempt from portions of the dangerous waste rules are considered solid

waste management units; these include waste water treatment units, recycling units, and accumulation areas. If EPA or Ecology conducted a RCRA Facility Assessment (or "RFA") at your facility, solid waste management units should be listed in the RFA Report. Call the appropriate Ecology regional office to find out if an RFA has been conducted at your facility or to obtain a copy of the RFA Report. At a minimum, provide the following for **each** solid waste management unit:

- (1) The location of the unit on the topographic map described in B-2;
- (2) A description of the type of unit (e.g., storage, treatment, landfill), how it was used to manage solid waste, and the period over which it operated;
- (3) A general physical and structural description of the unit. Include any available drawings of the unit;
- (4) A list of all solid wastes which were (or are) managed at the unit to the extent the information is available; and
- (5) Any other information you believe may help Ecology make a decision about the need for corrective action at the unit.

If an RFA is used for this summary, include the date the report was completed.

E-1b Releases

Provide information on known and suspected significant¹⁶ releases of dangerous waste and/or dangerous constituents at and from each solid waste management unit at the facility. Also include information on any known and suspected significant releases from sources other than solid waste management units (e.g., a large spill or a leak from processing equipment). At a minimum, for *each release*:

- (1) Mark the location of the release on the topographic map described in B-2;
- (2) Describe the following based on information that is already available to you. Sources of this information include the operator's facility operating record, reports of spills filed with Ecology or EPA, and knowledge of facility employees.
 - (a) Extent of the release and the dangerous constituents present;
 - (b) Results of sampling and analysis of the release or its source;
 - (c) Impacts or potential impacts to humans or the environment;
 - (d) The period over which the release occurred; and
 - (e) Any other information you believe may help Ecology make a decision about the need for corrective action for the release;
- (3) If you have already cleaned up some or all releases, describe these actions. The description may be brief, but should include enough information for Ecology to evaluate the need for additional corrective action. For example, describe how you determined the extent of the release; what you did to remove and/or treat the released materials, including how much soil

¹⁶ A *significant release* is a release which has affected or has the potential to affect human health or the environment at or beyond the facility. If there is a RFA Report for your facility, these releases should be listed as Areas of Concern or "AOC."

and/or debris was removed; what equipment or structures, if any, were removed; what was done to decontaminate structures and equipment that remained; and the steps you took to verify the release had been adequately remediated.

E-2 Corrective Actions Implemented

If you have been conducting corrective action under a RCRA Section 3008(h), 7003, or 3013 order; under a Model Toxics Control Act (MTCA) order; as an independent MTCA cleanup; or under another authority:

- a. Briefly describe the work that has been completed;
- b. If the corrective action is on-going, briefly describe the work planned and the anticipated final result (e.g., corrective action will be considered complete when all contaminated soil is removed and the achievement of cleanup levels has been confirmed);
- c. Indicate the authority under which the work was done (e.g., MTCA order, RCRA order, other); and
- d. List reports that have been submitted to Ecology and/or EPA: provide the titles of the reports, the dates they were submitted, and the offices they were submitted to (e.g., Ecology's Southwest Regional Office; Ecology's Headquarters Office, Hazardous Waste Permits Unit; Ecology's Kennewick Office).

F. Procedures to Prevent Hazards

806(4)(a)(iv), (v), (vi), (viii), (ix), 310, 320, 340 [270.14(b)(4), (5), (6), (8); 264.14, 264.15, 264.17, 264.30 - 264.35]

Section F will be incorporated into the facility's final status permit.

F-1 Security

806(4)(a)(iv), 310(1) and (2) [270.14(b)(4), 264.14]

Unless a waiver is granted under F-1b, the facility must demonstrate compliance with the procedures, structures, and equipment in F-1a for the areas in which dangerous wastes are stored and/or treated in tanks or containers.

F-1a Security Procedures and Equipment: 806(4)(a)(iv), 310(2) [270.14(b)(4), 264.14]

The facility must:

- (1) Have either a 24-hour surveillance system or a barrier and means to control entry.
Demonstrate either:
 - (a) That the facility has a 24-hour surveillance system that continuously monitors and controls entry onto the portion(s) of the facility where dangerous wastes are being treated or stored. Examples of surveillance systems include television monitoring or surveillance by guards or facility personnel; or

- (b) That the facility has an artificial or natural barrier, that completely surrounds any portion of the facility where dangerous wastes are being treated or stored and a means to control entry, at all times, through the gates or other entrances. Examples of barriers include a fence in good repair or a fence combined with a cliff. Examples of means to control entry include an attendant, television monitors, locked entrance, or controlled roadway access to the facility.
- (2) Have signs with the legend "Danger - Unauthorized Personnel Keep Out" posted at each entrance to the portion(s) of the facility where dangerous wastes are being treated or stored. The same type of signs must also be posted at other locations in sufficient numbers to be seen from any approach to these areas. The legend must be written in English and in any other language predominant in the area surrounding the facility and must be legible from a distance of at least 25 feet. Existing signs with a legend other than "Danger - Unauthorized Personnel Keep Out" may be used if the legend on the sign indicates that only authorized personnel are allowed to enter the area and that entry onto the area can be dangerous.

F-1b Waiver: 310(1) [264.14(a)]

If a waiver of the security procedures and equipment requirements is requested, the owner or operator must demonstrate the following:

- (1) Physical contact with the waste, structure, or equipment within the active portion of the facility will not injure persons or livestock that may enter the active portion of a facility; and
- (2) Disturbance of the waste or equipment within the active portion(s) of the facility by persons or livestock will not cause violations of the Dangerous Waste Regulations, Chapter 173-303.

F-2 Inspection Plan:

806(4)(a)(v), 320, 340 [270.14(b)(5), 264.15]

The Inspection Plan must demonstrate that inspections will be conducted, the results recorded, and timely remedies implemented, to prevent malfunctions, deterioration, operator errors, and discharges which may cause or lead to the release of dangerous waste constituents to the environment or to a threat to human health.

F-2a General Inspection Requirements: 806(4)(a)(v), 320(1), 320(2)(a), (b) and (c), 340(1)(d) [270.14(b)(5), 264.15(a) and (b), 264.33, 264.34, 264.35]

For all monitoring equipment, safety and emergency equipment (including those described in the contingency plan), security devices, preparedness and prevention equipment, and operating and structural equipment that help prevent, detect, or respond to environmental or human health hazards related to the dangerous waste management areas where dangerous wastes will be stored or treated, including load/unload areas associated with these units:

- (1) Describe the items, or groups of items, to be inspected and the schedule(s) for inspecting them. Be specific in identifying items to be inspected. For example, "personal protective equipment" is general, but listing "full face respirator" and "chemical cartridges for the following chemicals ...(list types)..." is specific; "valves" is general, but describing an area, such as "valves in air emissions equipment in area A" is specific; "pumps" is general, but

describing which pumps in a specific area, such as "pumps in area A subject to Subpart BB air emissions standards" is specific;

- (2) Identify the types of problems to look for during inspections. For example, wet spots and other signs of leaks, measured organic emissions exceed 10,000 ppm¹⁷, number of items is below required minimum (the minimum number must be listed);
- (3) Describe the frequency of inspection for specific items on the schedule. It should be based on the rate of possible deterioration of equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or operator error goes undetected between inspections. In many cases, state or federal rules specify the frequency. Be specific: "at least every 30 days" or "at least every 7 days" rather than "weekly" or "monthly."

Areas subject to spills, such as storage areas and load/unloading areas, and major features of the site (such as berms, storage conditions and general site appearance) must be inspected daily when in use;

- (4) Describe where the schedule will be kept at the facility; and
- (5) Identify the employee position(s) responsible for conducting inspections.

F-2b Inspection Log: 320(2)(d) [264.15(d)]

Describe the inspection log(s) used to record data from inspections and provide example logs. Show that the logs will include, at a minimum, the following: date and time of inspection, printed name and the handwritten signature of the inspector, a notation of the observations made, an account of spills or discharges in accordance with WAC 173-303-145, and the date and nature of any repairs or remedial actions taken. Also, demonstrate that logs will be organized by location (e.g., container storage area "A") and by frequency (e.g., daily, weekly, monthly, quarterly).

F-2c Schedule for Remedial Action for Problems Revealed: 320(3) [264.15(c)]

- (1) Describe schedule(s) and procedures for remedying problems revealed by inspections to ensure hazards to human health and the environment are prevented. The schedule(s) and procedures:
 - (a) Must demonstrate that, where a hazard is imminent or has already occurred, remedial action will be taken immediately;
 - (b) Should take into account the rate of:
 - (i) Possible deterioration of equipment and the probability of an environmental or human health incident before the remedy is implemented; and
 - (ii) Use of supplies and the probability that supplies could be used up before ordered replacements are received;
 - (c) Must specify actual timelines for taking corrective measures for each type or category

17 For the purposes of 40 CFR Part 264 Subpart BB, a leak has been detected when the portable organic vapor analyzer shows emissions of 10,000 ppm or more.

of problems that could be encountered. For example, the schedule should require that remedies for certain types of conditions (e.g., a leaking container) be performed immediately; other remedies performed quickly, such as within 24 hours of detection (e.g., removing liquid from a sump); and the remainder over a longer period, such as within 2 days, 5 days, or 7 days, depending on the problem (e.g., ordering supplies, making structural repairs); and

- (d) Must identify which position(s) is(are) responsible for taking corrective action or ensuring other staff remedy the problem(s).
- (2) For major categories of problems, describe the remedies to be taken; for example, to repair cracks in the secondary containment or floor of a storage/ treatment area, to repair deterioration of joint seal compound or water stops (show that the compound used to repair the joint seal is resistant to the wastes stored in the area), to respond to drips at equipment regulated under 264.1058 (in this case, leak detection monitoring must be completed within five days), or to obtain needed supplies. In some cases, part of the response to certain problems could include more frequent inspections for a period of time.

F-2d Specific Process or Waste Type Inspection Requirements

F-2d(1) Container Inspections: 806(4)(a)(v), 630(3) and (6), 320(2)(c) and (3) [270.14(b)(5), 264.15(c), 264.174]

- (a) Demonstrate that, when in use¹⁸, the containers and the container storage area will be inspected at least:
 - (i) Daily for:
 - (A) Leaks, spills, and accumulated liquids¹⁹; and
 - (B) Ensuring that container labels are not obscured, removed, or otherwise unreadable.
 - (ii) Weekly for:
 - (A) Deterioration of containers (including corrosion and other factors) and of the secondary containment system;
 - (B) Cracks in the chemically-resistant coating or the foundation or deterioration of coating and/or sealants; and
 - (C) Dirt or other materials preventing inspection of protective coatings or foundations.
- (b) Describe the actions taken to ensure that:
 - (i) Problems with container condition and container management will be properly remedied;

¹⁸ "When in use" means when containers are being held in the storage area.

¹⁹ If the secondary containment structure exists and is not sloped to drain liquids, then provide procedures to show that inspections will include checking the entire area for leaks, including under the containers.

- (ii) Problems with secondary containment or the base under containers is properly remedied. For example, describe actions to repair cracks in secondary containment or the base under containers. Remedies for spills must be adequate to prevent overflow of spilled material and/or rain water; and
- (iii) Spilled and leaked material will be immediately removed from secondary containment.

F-2d(2) Tank System Inspections and Corrective Actions: 640(6) and (7) [270.14(b)(5), 264.195]

F-2d(2)(a) Tank System Inspections: 806(4)(a)(v), 640(6) [264.195]

- (i) Demonstrate that tank systems²⁰ will be inspected as follows:
 - (A) Describe the schedule and procedures for inspecting overfill controls such as level sensing devices, high level alarms, automatic feed cutoff, or bypass to standby tank;
 - (B) Show the following will be inspected at least once each operating day:
 - (I) Aboveground portions of the tank system, if any, to detect corrosion, weld breaks, punctures, or releases of waste;
 - (II) Data gathered from monitoring any leak detection equipment (e.g., pressure or temperature gauges, monitoring wells) to ensure that the tank system is being operated according to its design; and
 - (III) The construction materials and the area immediately surrounding the externally accessible portion of the tank system, including the secondary containment system (e.g., dikes) to detect erosion, signs of releases of dangerous waste (e.g., wet spots, dead vegetation), or deterioration of the secondary containment (such as gaps or cracks in an external liner system or vault, or deterioration of sealants for expansion joints or of water stops).
 - (C) For tank systems in contact with soil or water, show the cathodic protection systems, if present, will be inspected according to, at a minimum, the following schedule to ensure that they are functioning properly:
 - (I) The proper operation of the cathodic protection system must be confirmed within six months after initial installation and annually thereafter; and
 - (II) All sources of impressed current must be inspected and/or tested, as appropriate, at least bimonthly (i.e., every other month).

The practices described in the National Association of Corrosion Engineers (NACE) standard, *Recommended Practice (RP-02-85)--Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems*, and the American Petroleum Institute (API) Publication 1632, *Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems*, may be used, where applicable, as guidelines in maintaining and inspecting cathodic protection systems.

20 A *tank system* includes the tank and its ancillary equipment, such as pipes, and its secondary containment system, including foundation, berms, sumps, etc.

- (ii) Submit the schedule and procedure for assessing the condition of the tank. This procedure must be adequate to detect corrosion, erosion, cracks, leaks, pitting, or wall thinning to less than sufficient shell strength and be based on corrosion rate of tank sources. In addition, describe the procedures for emptying the tank to allow entry and inspection of the interior to detect corrosion or erosion of the tank sides and bottom. Include a description of personnel protection procedures (e.g., use of two-person teams).

F-2d(2)(b) Tank Systems - Corrective Actions: 640(7) [264.196]

Describe the actions taken to ensure that a tank system is removed from service immediately when there has been a leak or spill from it or the system is unfit for use. Demonstrate that:

- (i) Flow of waste into the system will be stopped;
- (ii) Waste will be removed from the system within 24 hours;
- (iii) Visible releases to the environment will be contained;
- (iv) Non-exempted leaks or spills will be properly reported;
- (v) The system will be closed, repaired, or provided with secondary containment;
- (vi) Major repairs will be certified before the tank system is returned to service.

F-2d(3) Storage of Ignitable or Reactive Wastes: 806(4)(a)(v), 395(1)(d) [no equivalent federal requirement]

Demonstrate that at least yearly, the owner/operator will inspect the areas where ignitable or reactive wastes are stored. Describe who will conduct the inspection; demonstrate the person is familiar with the Uniform Fire Code or that the inspection will be conducted in the presence of the local, state, or federal fire marshal. For example, if an employee of the facility will conduct the inspection, show that the position requires knowledge and/or training in the Uniform Fire Code.

Demonstrate that the following information will be entered in the inspection log or operating record: the date and time of inspection; the name of the inspector or fire marshal; a notation of the observations made; and any remedial actions which were taken as a result of the inspection.

F-2d(4) Air Emissions Control and Detection - Inspections, Monitoring, and Corrective Actions: 806(4)(a)(v) [270.14(b)(5), 264.1033 (e) - (k); 264.1035; 264.1052; 264.1053; 264.1058; 264.1064; 264.1067, 264.1088, 264.1091]

Describe how the specific inspection, monitoring, and corrective action requirements for air emission control devices, closed vent systems, equipment leaks, tanks, and containers will be performed and recorded.

F-2d(4)(a) Process Vents: 806(4)(a)(v) [264.1033; 264.1034(b) and (c); 264.1035(b)(3), (b)(4), and (c)]

Describe how the closed vent systems and control devices used to meet requirements in Part 264 Subpart AA will be inspected and monitored to ensure they are operating according to design specifications and operating parameter values established under D-8a(2). Include:

- (i) Intervals for inspecting and monitoring closed vent systems, control devices, and monitoring devices;

- (ii) Precise descriptions of problems to look for; for example, for a fixed-bed carbon adsorber, a problem would be that the existing carbon has been in the device for longer than *X* days, with *X* being the service life established under D-8a(2)(c). In another example, for a thermal vapor incinerator, a problem would be operating at less than *X* °C in the combustion zone, where *X* is "28 °C below the design average combustion zone temperature"²¹ established under D-8a(2)(c);
- (iii) A demonstration the records in §264.1035(c)(3) and (c)(4) will be made and maintained; and
- (iv) Procedures and timelines to ensure actions are implemented to correct problems.

F-2d(4)(b) Equipment Leaks: 806(4)(a)(v) [264.1052 - 264.1064]

Demonstrate the required daily, monthly, quarterly, and annual inspections will be conducted as appropriate for specific equipment, closed vent systems, and air emissions control devices regulated under Part 264 Subpart BB. Also demonstrate repairs will be attempted and completed within required deadlines. Include provisions to:

- (i) Ensure identification numbers are present and readable;
- (ii) Check for leaking equipment, emissions, failure of dual mechanical seals and barriers, functioning of audible alarms (if present), and other parameters that reveal whether monitoring or emission control devices are operating as designed;
- (iii) Tag (or mark) leaking equipment consistent with requirements in §264.1064(c);
- (iv) Monitor "unsafe-to-monitor valves" and for "difficult-to-monitor valves" consistent with the monitoring plans (§264.1057(g) and (h)) described under D-8b(2)(a)(ii)(D);
- (v) Conduct and record the inspections and monitoring required under F-2d(4)(a) for closed vent systems and control devices used to comply with §§264.1052-264.1059;
- (vi) Keep the required inspection and other operating records. For example:
 - (A) When leaks are detected, the record keeping and inspection log requirements in §264.1064(c) and (d) must be met;
 - (B) For equipment designated as "no detectable emissions" under §§264.1057(f) and 264.1064(4), each required compliance test must be recorded, including the dates of the test, background level measured, and the maximum instrument reading at the equipment;
 - (C) When the facility chooses to comply with §264.1061, the percent of valves found leaking during each monitoring period must be recorded in the operating record (§264.1064(i));
- (vii) Ensure that monitoring equipment, for example, the portable organic vapor analyzer for method 21, will be inspected to ensure it is calibrated and operates properly. Be instrument-specific when describing the problems to look for.
- (viii) Ensure the test methods and procedures in §264.1063 will be used for monitoring (method 21 for monitoring for leaks; method in §264.1063(c) to monitor for "no detectable emissions" equipment); and

21 See §264.1035(c)(ii).

- (ix) Ensure repairs are attempted and completed on time and repair methods/procedures used are described in the record; for example "use spare pump while pump is repaired," "inject sealant into valves," "repack valve," "replace valve."

F-2d(4)(c) Tanks and Containers: [270.14(b)(5), 270.27((a)(6), 264.1088, 264.1091]²²

Demonstrate that the required inspections and monitoring will be conducted.

F-2d(5) Waste Pile Inspection

F-2d(6) Surface Impoundment Inspection

F-2d(7) Incinerator Inspection

F-2d(8) Landfill Inspection

F-2d(9) Land Treatment Facility Inspection

F-3 Preparedness and Prevention Requirements

806(4)(a)(vi), 340 [270.14(b)(6), Part 264 Subpart C]

Describe the preparations and preventive measures required by 340 to help avoid or mitigate the possibility of a fire, explosion or any unplanned sudden or nonsudden release of dangerous waste or dangerous waste constituents to air, soil, or surface water that could threaten human health or the environment.

Alternatively, request, and justify, a waiver(s) of the requirements in WAC 173-303-340.

F-3a Equipment Requirements: 340(1) and (2) [264.32, 264.34]

All facilities must be equipped with the following, unless it can be demonstrated that none of the hazards posed by waste handled at the facility could require a particular kind of equipment specified:

- (1) **Internal Communications:** Describe the internal communications or alarm system used to provide immediate emergency instruction (voice or signal) to facility personnel. Demonstrate that whenever dangerous waste is being poured, mixed, spread, or otherwise handled, all personnel involved will have immediate access to this communication system, either directly or through visual or voice contact with another employee.
- (2) **External Communications:** Describe the device, such as a telephone (immediately available at the scene of operations) or a handheld two-way radio, for summoning emergency assistance from local police departments, fire departments, or state or local emergency response teams. Demonstrate that if there is ever just one employee on the premises while the facility is operating, that employee will have immediate access to this device.
- (3) **Emergency Equipment:** Demonstrate that portable fire extinguishers, fire control equipment (including special extinguishing equipment, such as that using foam, inert gas, or dry chemicals), spill control equipment, and decontamination equipment are available at the facility.

22 Note that Department of Ecology has not yet adopted the CC requirements.

- (4) **Water for Fire Control:** Demonstrate that the facility has water at adequate volume and pressure to supply water hose streams, foam producing equipment, automatic sprinklers, or water spray systems.

F-3b Aisle Space Requirement: 340(3) [264.35]

Demonstrate the facility maintains sufficient aisle space to allow the unobstructed movement of personnel, fire protection equipment, or spill control equipment to any area of facility operation in an emergency.

Any request for a waiver of these aisle space requirements must be accompanied by a demonstration that aisle space is not needed for any, or all, of the purposes detailed above.

F-4 Preventive Procedures, Structures, and Equipment

806(4)(a)(viii) [270.14(b)(8)]

Describe the procedures, structures, and/or equipment used to:

- a. Prevent hazards and contain spills in unloading/ loading operations (e.g., use of ramps, berms, pavement, or special forklifts; maximum number of hours containers will be in load/unload area; what load/unload areas will be used for; procedures for loading/unloading wastes and for holding wastes; etc.);
- b. Prevent run-off from dangerous waste handling areas to other areas of the facility or environment, or prevent flooding (e.g., berms, dikes, trenches);
- c. Prevent contamination of water supplies;
- d. Mitigate the effects of equipment failure and power outage; and
- e. Prevent undue exposure of personnel to dangerous waste (e.g., protective clothing).

F-5 Prevention of Reaction of Ignitable, Reactive, and/or Incompatible Wastes

806(4)(a)(ix), (b)(v), and (c)(x); 395(1)(a), (b) and (c); 630(9)(a) and (b); 640(9)(10) [270.14(b)(9), 264.17(a) and (b), 264.177(a) and (b)]

If the facility treats and/or stores ignitable, reactive, and/or incompatible dangerous wastes, describe precautions to prevent the accidental ignition or reaction of these wastes as presented below.

F-5a Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste: 806(4)(a)(ix), 395(1)(a) and (c) [270.14(b)(9), 264.17(a)]

- (1) If the facility handles ignitable or reactive waste, demonstrate that:
 - (a) These wastes will be separated and protected from sources of ignition or reaction such as open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical, or mechanical), spontaneous ignition (e.g., heat-producing chemical reactions), and radiant heat;

- (b) When ignitable or reactive waste is being handled, the owner or operator confines smoking and open flames to specially designated locations; and
 - (c) "NO SMOKING" signs are conspicuously placed wherever a hazard exists from ignitable or reactive waste.
- (2) Procedures, structures and measures described in this section must be site-specific. Examples include procedures and equipment to empty and inert tanks before welding on or near the tanks, to ground containers before adding or removing waste, and to ground tanks and bulk waste trucks before adding or removing waste; and site diagrams showing the locations of "no smoking" signs and of specially designated "smoking" areas.
 - (3) Provide documentation demonstrating implementation of these precautions will be placed in the operating record as required by WAC 173-303-395(1)(c).

F-5b Precautions for Handling Ignitable or Reactive Waste and Mixing Incompatible Wastes: 806(4)(a)(ix), (b)(v), and (c)(x); 395(1)(b) and (c); 630(9)(a) and (b); 640(9) and (10) [270.14(b)(9), 264.17(b), 264.177(a) and (b)]

In addition to providing the information described below, present documentation demonstrating implementation of these precautions will be placed in the operating record as required by WAC 173-303-395(1)(c).

F-5b(1) Ignitable or Reactive Wastes In Tanks: 806(4)(c)(x), 640(9) [270.16(j), 264.198]

Describe facility-specific measures and procedures²³ to ensure ignitable or reactive waste will not be placed in tank systems unless one of the following three conditions is met:

- (a) That both:
 - The waste is treated, rendered, or mixed before or immediately after placement in the tank system so that the resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under WAC 173-303-090; **and**
 - Precautions are taken to prevent reactions which: (1) generate extreme heat or pressure, fire or explosions, or violent reactions; (2) produce uncontrolled flammable fumes, dusts, or gases in sufficient quantities to threaten human health or the environment; (3) produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions; (4) damage the structural integrity of the device or facility; or (5) by similar means threaten human health or the environment.

If the facility will use this condition, describe the site-specific treatment, rendering or mixing processes that will render the waste non-ignitable or non-reactive and the site-specific precautions to prevent the listed reactions. Examples of such processes include: lab-scale testing of treatment, lab-scale testing of mixing procedures, and air-venting and treatment; or

23 Note that the *design* elements related to managing ignitable or reactive wastes in tanks are discussed in D-2. The focus here is on procedures and activities -- what staff will do.

- (b) The waste is stored or treated in such a way that it is protected from any material or conditions which may cause the waste to ignite or react (include facility-specific measures to protect the waste here and/or under F-5a); or
- (c) The tank system is used solely for emergencies.

F-5b(2) Incompatible Wastes In Containers or Tanks: 806(4)(b)(v) and (4)(c)(x), 630(9)(a) and (b), 640(10) [270.15(d), 270.16(j) 264.17(b) and (c), 264.177(a) and (b), 264.199]

- (a) Describe the procedures used to ensure that the following activities are conducted only if the precautions in WAC 173-303-395(1)(b) are taken:
 - (i) Incompatible wastes, or incompatible wastes and materials, are placed in the same tank system or container; **or**
 - (ii) Dangerous waste is placed in a tank system that has **not** been decontaminated and that previously held an incompatible waste or material;
- (b) Describe the site-specific precautions to prevent the reactions described in WAC 173-303-395(1)(b). These include reactions which (1) generate extreme heat or pressure, fire or explosions, or violent reactions; (2) produce uncontrolled flammable fumes, dusts, or gases in sufficient quantities to threaten human health or the environment; (3) produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions; (4) damage the structural integrity of the device or facility; or (5) by similar means threaten human health or the environment. Also describe the site-specific precautions to prevent the reactions listed above.

G. Contingency Plan:

806(4)(a)(vii), 340, 350, 360, 640(7), 650(5), 660(6)
[270.14(b)(7), 264.50 through 264.56]

Facilities must provide a copy of the Contingency Plan which describes the actions, equipment and procedures to respond to fires, explosions, or any unplanned sudden or nonsudden release or spills of dangerous waste or dangerous waste constituents to air, soil, ground water, or surface water ("the environment") at the facility, and to receipt of a shipment of dangerous wastes which presents a hazard to human health or the environment.

The Contingency Plan must be able to "stand on its own," without references to other portions of the application, because it is sent to organizations that respond to emergencies.

The Contingency Plan will be included in the facility's final status permit.

G-1 General Information

Provide the facility name and location, operator name, site plan, and overview description of facility operations.

G-2 Emergency Coordinators

350(3)(d), 360(1) [264.52(d), 264.55]

- a. Provide names, titles, addresses, office and home phone numbers, and duties of primary and alternate emergency coordinators. Provide a statement authorizing the coordinator to commit the necessary resources to carry out the plan; the statement must be signed by someone with the authority to commit the facility's resources; and
- b. Describe the minimum qualifications (training and experience) that will be required of people hired to fill positions designated with the duties of the emergency coordinator and alternates. The minimum qualifications must show that employees will be qualified to act as emergency coordinator.

G-3 Circumstances Prompting Implementation

350(1) and (2), 360(2) [264.51, 264.52(a), 264.56(a) and (b)]

Describe when the contingency plan will be implemented to respond to emergency circumstances, including damaged shipments. An *emergency circumstance* includes a fire, explosion, or unplanned sudden or nonsudden release of dangerous waste or dangerous waste constituents to air, soil, surface water, or ground water.

Make the descriptions specific to the facility and the types of waste managed there.

G-4 Emergency Response Procedures

350(3)(a) and (b), 360(2)(a), (b), and (c) [264.52(a), 264.56]

Describe the actions and emergency procedures facility staff must implement to lessen the potential impact on human health and the environment in the event:

- a. Of an emergency circumstance; **or**
- b. That a shipment is denied receipt but cannot leave the facility because transport would present a hazard to human health or the environment due to:
 - (1) The extent of damage to the containers; or
 - (2) The condition of the waste.

G-4a Notification: 360(2)(a) [264.56(a)]

Describe the procedures and methods for immediately notifying the following an imminent or actual emergency:

- (1) Facility personnel; and
- (2) Appropriate state and/or local agencies if their help is needed. Briefly describe the circumstances requiring help by other agencies along with which agency(ies) would be called upon to provide the help.

Note that the facility must also notify under WAC 173-303-145.

G-4b Identification of Dangerous Materials: 360(2)(b) [264.56(b)]

Describe procedures and equipment for identifying the character, exact source, amount, and areal extent of any released materials when there has been a release to the environment, a fire, or an explosion. Include a generic sampling and analysis plan outlining the basic steps which will be taken to quantify the extent of contamination.

G-4c Hazard Assessment and Report: 360(2)(c), (d), and (e) [264.56(c) and (d)]

- (1) Describe the criteria used to assess the possible hazards to human health and the environment that may result from the fire, release, spill, or explosion, considering direct, indirect, immediate, and long-term effects. Also describe the criteria used to assess the need for evacuation and notification of authorities; and
- (2) Identify the state and local authorities to be notified in the event a release, fire, or explosion has occurred which could threaten human health or the environment; this list should include the government official designated as the *on-scene coordinator* for the area or the National Response Center. This list may be similar to the one prepared for G-4a.

G-4d Prevention of Recurrence or Spread of Fires, Explosions, or Releases: 360(2)(f) and (g), 630(2), 640(7) [264.56(e) and (f), 264.171, 264.196]

- (1) Describe the necessary steps that will be taken to ensure that fires, explosions, or releases do not occur, reoccur, or spread to other dangerous waste at the facility. These measures must include, where applicable, stopping processes and operations, collecting and containing released waste (including waste-contaminated soil or surface water), removing waste from tanks, and removing or isolating containers. Include clean-up levels and procedures for cleaning up waste-contaminated soil and other media or debris; and
- (2) Describe procedures for ensuring that, if the facility stops operations in response to an emergency, the emergency coordinator will monitor for leaks; pressure buildup; gas generation; or ruptures in valves, pipes, or other equipment, wherever this is appropriate.

G-4e Post-Emergency Actions: 360(2)(h), (i), (j), and (k); 640(7) [264.56(g) and (h)]

Describe:

- (1) Procedures to ensure that, immediately after the emergency, any material that results from a release, fire, or explosion at the facility will be properly treated, stored, or disposed of;
- (2) Provisions to prevent incompatible waste from being treated, stored, or located in the affected areas until clean-up procedures are completed;
- (3) Procedures and provisions to ensure tank systems are expeditiously repaired or closed;
- (4) Procedures and provisions to ensure container storage areas are expeditiously repaired or closed;

- (5) Procedures to ensure that all emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed; and
- (6) Procedures to notify Ecology and the appropriate local authorities (list the authorities) that the facility has completed clean-up procedures and that emergency equipment is clean and ready for its intended use.

G-5 Emergency Equipment

350(3)(e) [264.52(e)]

List and describe the emergency equipment and where it is kept. Emergency equipment includes, and is not limited to: fire extinguishing systems, spill control equipment, monitoring equipment (such as meters that measure combustible gas, oxygen, and/or levels of specific toxic gases that might be present at the facility), communications and alarm systems, and decontamination equipment.

G-6 Coordination Agreements:

350(3)(c), 340(4) [264.52(c), 264.37]

- a. Describe the coordination agreements with local police and fire departments, hospitals, contractors, equipment suppliers, and state and local emergency response teams, including designation of a primary emergency authority if more than one party might respond and the agreements for other entities to provide support to the primary authority. List all the entities with which the facility has made arrangements;
- b. Describe arrangements:
 - (1) To familiarize police, fire departments, and emergency response teams with the layout of the facility, properties of dangerous waste handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to and roads inside the facility, and possible evacuation routes; and
 - (2) To familiarize local hospitals with the properties of dangerous wastes handled at the facility and the types of injuries or illnesses which could result from emergencies; and
- c. If state or local authorities decline to enter into arrangements for coordination or familiarization, provide documentation of the refusal.

G-7 Evacuation Plan

350(3)(f), 355 [264.52(f)]

Describe the planned and alternate evacuation routes and the signal(s) that will be used to begin evacuations. Include routes and signals for both on-site and off-site. The routes must take wind direction into account.

G-8 Required Reports, Recordkeeping, and Certifications

360(2)(k), 640(7)(d)(iii), 640(7)(f) [264.56(j)]

G-8a General Requirements

Describe the provisions for noting in the operating record the time, date, and details of any incident that requires implementing the Contingency Plan. Describe the procedures for submitting a report on the emergency incident within 15 days of its occurrence. Demonstrate that the report will include the elements required by 360(2)(k).

G-8b Requirements for Tank Systems

Describe:

- (1) Procedures for reporting to Ecology any release to the environment within 24 hours of its detection;
- (2) Procedures for submitting a written report within 30 days of a release to the environment. Demonstrate that the report will include the elements required by 640(7)(d)(iii); and
- (3) Provisions for certifying that a major repair of a tank system has been completed and the tank system has been placed back into service.

H. Personnel Training

806(4)(a)(xii), 330 [270.14(b)(12), 264.16]

Ecology will include the information in H-2, *Outline of Training Program*, and H-3, *Implementation of Training Program*, in the facility permit. The information in H-1, *Job Title/Job Description*, will be used in evaluating the suitability of the training content.

The information submitted under this section makes up only part of the Training Plan required by the Dangerous Waste Regulations. The entire Training Plan must be maintained in the operating record. In addition to the material required in the Part B permit application, this Plan must contain such additional information as for each job title, the name of the employee(s) filling the position, the requisite skills, education, other qualifications, and duties of each position related to dangerous waste management at the facility. Also, records documenting that employees have received the appropriate training must be maintained in the operating record.

H-1 Job Title/Job Description

330(2)(a) [264.16(d)(1) and (2)]

- a. Provide the job title and job description for each position at the facility with duties related to dangerous waste management. This includes, but is not limited to, employee positions responsible for developing and implementing the training program, performing inspections, loading/unloading dangerous waste at the treatment or storage areas, participating in emergency responses, sampling and/or testing wastes according to the Waste Analysis Plan, and accepting or rejecting waste streams or waste shipments;
- b. Describe the employee organization in sufficient detail to show the positions the above employees report to and to clearly indicate which position(s) within the organization have the

authority to sign the Part A form and the certification statement that must accompany the Part B application; see WAC 173-303-810(12) and (13); and

- c. Please describe the education and training required for the position which is responsible for directing the training program to demonstrate the employee will be knowledgeable in dangerous waste management procedures.

H-2 Outline of Training Program

806(4)(a)(xii), 330(1) and (2)(b) [270.14(b)(12); 264.16(a)(1), (c), and (d)(3)]

Describe the content, frequency, and techniques (for both classroom and on-the-job training) used in both introductory and continuing training (including an annual review of the initial training) to prepare employees to operate or maintain the facility in a safe manner and in a way that ensures the facility's compliance with the Dangerous Waste Regulations.

- a. Describe how the training is designed to meet actual job tasks. For example, show that the program teaches personnel:
 - (1) To perform their duties in a way that ensures the facility's compliance with the Dangerous Waste Regulations; and
 - (2) To carry out the tasks (including contingency plan implementation) relevant to their positions; and
- b. Demonstrate that the program ensures personnel are able to respond effectively to emergencies and familiarizes them with emergency procedures, equipment, and systems, including:
 - (1) Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment;
 - (2) Key parameters for automatic waste feed cut-off systems, if the facility has such systems;
 - (3) Communications or alarm systems and how and when to use them;
 - (4) Response to fires and explosions;
 - (5) Response to groundwater contamination incidents;
 - (6) Shutdown of operations; and
 - (7) Other aspects of facility waste and/or emergency procedures and operations.

H-3 Implementation of Training Program

330(1)(c), 330(2)(c), 330(3) [264.16(b)]

Describe the schedule for employees to complete training to demonstrate facility personnel will successfully complete it within six months of their employment or assignment to the facility or of their transfer to a new position within the facility, whichever is later. Show the amount of time spent in classroom training and in on-the-job training.

I. Closure and Financial Assurance

806(4)(a)(xiii), 610, 620 [270.14(b)(15), 264.142, 264.143, 264.151]

Sections I-1, *Closure Plan/Financial Assurance for Closure*, and I-4, *Liability Requirements*, will be included as conditions in the permit issued for the facility.

Ecology has prepared guidance on demonstrating compliance with the clean closure performance standard through removal and decontamination of dangerous wastes, constituents, and residues. The guidance, "Guidance for Clean Closure of Dangerous Waste Management Facilities," is Ecology Publication #94-111. You may obtain a copy by contacting the Hazardous Waste Permits Unit. The guidance includes information on preparing closure plans.

I-1 Closure Plan/Financial Assurance for Closure

806(4)(a)(xiii), 610(2) - (6) [270.14(b)(13), 264.111, 264.112]

The Closure Plan must identify the steps necessary to completely or partially close the facility at any point during its active life and the cleanup standards that will be achieved. The plan must be a "stand alone" document that can be used without referring to other portions of the application.

I-1a Closure Performance Standard: 610(2)(b) [264.111]

- (1) For soils, ground water, surface water, and air, describe the numeric clean closure levels for the full suite of dangerous constituents generated or managed at the dangerous waste units (i.e., 40 CFR 264 Appendix VIII and IX chemicals managed at the units or that could be breakdown products of chemicals managed there). Calculate the clean closure levels using residential exposure assumptions according to the Model Toxics Control Act Regulations (MTCA), Chapter 173-340 WAC, Method B or if appropriate, Method A; see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745. Describe which method was used, present the calculations, and provide the calculated clean closure levels; and
- (2) For decontamination of structures, equipment, bases, liners, etc., the clean closure standards are those from the LDR treatment technologies for hazardous debris; the standards are in 40 CFR 268.45 Table 1. Describe which technology(ies) will be used for specific structures, equipment, bases, liners, etc. Provide support for the selected technology(ies).

To propose an alternative decontamination standard, describe the standards that will adequately protect human health and the environment; see Section 5, Decontamination, in the clean closure guidance for more information. In particular, review Section 5.5 which covers alternative closure standards, and Section 5.8, which covers the special circumstances related to decontamination of concrete. Provide support for the proposed alternative standards.

I-1b Closure Activities: 610(3)(a)(i) through (vi); 610(5); 630(10); 640(5) [264.112(b)(1), 264.112(b)(4), 264.114, 264.178, 264.197]

Describe how each dangerous waste management unit at the facility will be closed and how final closure of the entire facility will be conducted to meet closure performance standards in I-1a.

I-1b(1) Maximum Extent of Operation

Identify the maximum extent of the operation during the active life of the facility, showing the location and dimensions of all dangerous waste management units. If one or more units has already been "clean closed", describe the maximum extent of the operation after the date the partial facility closure(s) was completed.

I-1b(2) Removing Dangerous Wastes

Describe in detail each step and the methods to be used for removing, recycling, treating, storing, and transporting all dangerous wastes present in the dangerous waste management units. Include the type(s) of off-site dangerous waste management units wastes will be sent to; for example, incineration, solvent recovery, hazardous waste landfill, etc. Provide information on the distances wastes may have to be transported. The transport distances and management information is needed to determine closure costs.

Even if you propose to use existing on-site treatment or recycling equipment/ operations to process wastes during closure, you must include options for treating or recycling wastes at off-site facilities. On-site treatment or recycling units may be inoperable at the time of closure and therefore unavailable. In that case, sufficient funds need to be available to pay for off-site treatment and/or recycling.

I-1b(3) Decontaminating Structures, Equipment, and Soil

Describe in detail each step and the methods, personnel, equipment, and supplies (such as cleansing agents) used to decontaminate or remove all dangerous waste residues; contaminated containment system components, equipment, and structures; discharge control equipment and confinement structures for container secondary containment and for tank systems or sumps; equipment used to manage wastes; and any contaminated soils. Describe temporary on-site storage of residues and decontamination waste and any proposed on-site recycling or treatment of wastes. Describe the type(s) of off-site dangerous waste units these wastes will be sent to. Include:

- (a) Provisions for sampling and testing²⁴ soil under foundations and containment structures before any contaminated containment systems are removed;
- (b) Procedures for identifying cracks or other openings in containment structures that could result in a release of waste or waste residues to the environment, then recording their locations and dimensions, and sealing or repairing them. Identify the material used to seal or repair cracks and openings and demonstrate that it is resistant to water and the cleaning solutions to be used during decontamination;
- (c) Procedures for identifying and recording the locations of stains on secondary containment structures, in load/unload areas, or on soils (these indicate areas of spilled materials);
- (d) Decontamination and/or removal of remaining containers, container storage area liners and bases, tank systems, tank discharge control equipment, tank containment systems and underlying bases (where present), discharge confinement structures (including the secondary

24 The detailed sampling and testing procedures will be provided under I-1b(4).

containment system), and soil containing or contaminated with dangerous waste or dangerous waste residues.

If not all contaminated soils can be practically removed or decontaminated, then the dangerous waste management unit must be closed under requirements for landfills. If a unit includes a tank system that is subject to the secondary containment requirements in WAC 173-303-640(4)(g), but the tank system does not have secondary containment that meets the requirements of WAC 173-303-640(4)(b) - (f), then the Closure Plan must include plans both for "clean closure" and for closing as a landfill (this second plan is called a "contingent post-closure plan"). See WAC 173-303-640(8) for more information;

- (e) An estimate of the volume of material that will be removed and recycled, treated, and/or disposed of;
- (f) Where removed materials will be held before transport, the types of containers and/or tanks it will be held in, and the types of management units it will be sent to. Include measures to provide for secondary containment;
- (g) Procedures for decontaminating equipment; and
- (h) Plans for disposal of materials that do not designate as dangerous waste but do exceed cleanup levels for one or more constituents.

I-1b(4) Sampling and Analysis to Identify Extent of Decontamination/Removal and to Verify Achievement of Closure Standard

Describe the sampling and test procedures to ensure that the extent of contamination is defined and to confirm that decontamination and/or removal activities have attained the closure standard. An Ecology publication, Guidance on Sampling and Data Analysis Methods, publication #94-49, provides helpful guidance for this portion of the closure plan.

I-1b(4)(a) Sampling to Determine Extent of Contamination

- (i) Describe method(s) for determining sampling locations and numbers for both area-wide²⁵ and for bias²⁶ samples to determine the vertical and horizontal extent of contamination. Provide support for the selected method(s). Two references will be helpful in determining the interval for a grid system. If "hot spots" of contamination may be present, a useful reference is Gilbert's Statistical Methods for Environmental Pollution Monitoring, Van Nostrand Reinhold Company, New York, NY, 1987. US EPA's Methods for Evaluating the Attainment of Cleanup Standards - Volume 1: Soils and Solid Media, 1989 (EPA 230/02-89-042), Chapter 6, provides an equation to determine the number of samples to be collected based on statistical information from a pilot sampling study;
- (ii) Describe sampling methods and equipment for each type of sample (concrete, soil, etc.);
- (iii) Present sample container and preservation requirements;

25 *Area-wide* sampling must be either *systematic* or *random*. Both are performed using a grid system. See Section 6.2.1 in the clean closure guidance.

26 *Bias* sampling is called *focused* sampling in the clean closure guidance.

- (iv) Describe constituents to test for, laboratory analyses to perform and the rationale for each analysis, test methods, and expected detection limits. Constituents must reflect the full suite of dangerous constituents generated or managed at the dangerous waste units (i.e., 40 CFR 264 Appendix IX chemicals managed at the units or that could be breakdown products of chemicals managed there). If a limited number of indicator constituents is proposed for analysis of certain samples, provide the rationale and support for the proposed indicator parameters, which should include those most likely to have been released at the site;
- (v) Describe how analytical data will be evaluated against the cleanup standards. If a sample exceeds the cleanup standard for any constituent or parameter, then Ecology will generally determine that the material or area represented by the sample does not meet the cleanup standard. However, if contamination is widespread, or if natural background was used to define the clean closure levels, Ecology may require the methods in the publication Statistical Guidance for Ecology Site Managers be used; ask for Ecology publication #92-054;
- (vi) Describe Quality Assurance/Quality Control procedures, including field QA/QC; and
- (vii) Describe safety procedures and equipment for personnel during sampling and analysis.

I-1b(4)(b) Sampling to Confirm Decontamination of Structures and Soils

References provided under I-1b(4)(a) are also applicable for sampling to confirm decontamination.

- (i) Describe method(s) for determining sampling locations and numbers for both area-wide and bias samples to verify decontamination of tanks, concrete containment systems, and other media or equipment (e.g., final rinse will be sampled and analyzed to determine if all constituents and characteristics have been removed) and to verify removal of contaminated soil. Provide support for the selected method(s);
- (ii) Describe sampling methods and equipment for each type of sample (concrete, rinsate, soil, etc.);
- (iii) Provide sample container and preservation requirements;
- (iv) Describe constituents to test for, laboratory analyses to perform and the rationale for each analyses, and test methods and expected detection limits. Constituents must reflect the full suite of dangerous constituents generated or managed at the dangerous waste units (i.e., 40 CFR Part 264 Appendix IX chemicals managed at the units or that could be breakdown products of chemicals managed there). If a limited number of indicator constituents is proposed for analysis of certain samples, provide the rationale and support for the proposed indicator parameters, which should include those most likely to have been released at the site;
- (v) Describe how analytical data will be evaluated against the cleanup standards so that if a sample exceeds the cleanup standard for any constituent or parameter, then the material or area represented by the sample does not meet the cleanup standard. If contamination might be widespread, Ecology recommends that the methods in the Ecology publication Statistical Guidance for Ecology Site Managers be used; ask for Ecology document #92054;
- (vi) Describe Quality Assurance/Quality Control procedures, including field QA/QC; and
- (vii) Describe safety procedures and equipment for personnel during sampling and analysis.

I-1b(5) Other Activities: 610(3)(vi)

Describe in detail any other activities necessary during the closure period to ensure all partial closures and final closure satisfy the closure performance standards, including but not limited to, ground water monitoring, run-on and run-off control, and air emissions control. Describe activities to return the land to the appearance and use of surrounding land areas.

I-1c Maximum Waste Inventory: 610(3)(a)(iii) [264.112(b)(3)]

Provide an estimate of the maximum inventory of dangerous wastes ever on-site in storage and in treatment at any time during the active life of the facility. Show volumes of this maximum inventory by general waste type; for example, non-chlorinated solvents, chlorinated solvents, cyanide-bearing electroplating wastes, etc.

I-1d Closure of Waste Piles, Surface Impoundments, Incinerators, Land Treatment, and Misc. Units

I-1e Closure of Landfill Units

I-1f Schedule for Closure: 610(3)(a)(vii) [264.112(b)(6)]

Provide the schedule for final closure, including total time to close each dangerous waste management unit and time required for intervening closure activities. For example, the schedule must include the time to treat and/or transport all dangerous waste inventory; the time to remove and/or decontaminate containers, tank systems, containment system components, equipment, structures, and soils; the time to sample and test soils under containment structures before removing them (if necessary due to inability to decontaminate them); and the time to return the land to the appearance and use of the surrounding land areas. Describe the closure schedule in terms of days, weeks, or months from the date the final volume of dangerous wastes is received.

If a trust fund will be used to establish financial assurance and the facility expects to close before expiration of the permit²⁷, provide an estimate of the expected year of final closure.

I-1g Extension for Closure Time: 610(4)(a), 610(4)(b) [264.113(a), 264.113(b)]

If the planned closure is expected to exceed the 90 days for treatment, removal or disposal of wastes and/or the 180 days for completion of closure activities, include in the application a request for a longer schedule for closure and a demonstration that a longer period of closure time is required. The demonstration must show that the owner or operator will take all steps to prevent threats to human health and the environment and the activities required to treat and /or remove the dangerous waste inventory will of necessity take longer than 90 days to complete and/or the complete partial or final closure activities will take longer than 180 days to complete.²⁸

²⁷ The Department of Ecology normally issues permits for a ten-year period. Sometimes permits are issued for a shorter period; never for a longer term.

²⁸ Note that WAC 173-303-610(4)(a) includes another reason for requesting an extension to the closure schedule; however, it depends on a "reasonable likelihood that [the owner or operator] or another person

Note that the facility may also request a permit modification to change the schedule as long as the demonstration is submitted at least 30 days before the end of the 90-day or 180-day period. The request can be approved only if the requirements in WAC 173-303-610(4) are met.

I-1h Closure Cost Estimate: 806(4)(a)(xv), 620(3) [270.14(b)(15), 264.142]

Provide a copy of the most recent closure cost estimate, calculated to cover the entire cost of closure when the cost would be greatest (not including partial closures that have occurred previously). Provide support for the cost estimate by itemizing to show the quantities and unit costs used for each of the closure activities described under I-1b(2) through I-1b(5). For example, for removing dangerous wastes: identify tasks (for example, preparing containers for transport, loading trucks or rail cars, transporting wastes, wastes treated and/or disposed at off-site TSD) and for each task identify unit costs for staff, equipment, and supplies. Also, provide the approximate distance wastes would have to be transported and the unit costs for transporting the waste as well as the costs for treating and/or disposing of each general type of waste. Add costs for equipment mobilization and demobilization and for protective clothing and equipment. Where unit costs vary depending on the type of equipment, identify the type of equipment that will be used.

OSWER 9476.00-6, vol 3, NOV 86 (US NTIS) provides guidance on developing cost estimates; it shows how to present the information and presents example costs for tasks, sub-tasks, equipment, and personnel. These 1986 costs must be updated to current costs; use inflation factors to determine current costs or use other information on current costs.

For purposes of this cost estimate, presume that all dangerous waste stored on-site must be sent off-site for recycling, treatment, or disposal.

The cost must be updated annually using an inflation factor based on the Implicit Price Deflator for Gross National Product Index. You can obtain the Implicit Price Deflators from the RCRA Hotline at 1-800-424-9346. The annual update is available after May 10 of each year. The percent increase for a year is determined by dividing the most recent year's Price Deflator by the previous year's deflator. The year 1988 is considered the "base year." Ecology also has information on the Price Deflators and annual percent increases from 1987 to the present.

I-1i Financial Assurance Mechanism for Closure: 806(4)(a)(xv), 620(4) and (10) [270.14(b)(15), 264.143, 264.151]

Provide a copy of the established financial assurance mechanism for facility closure. Alternatively, if the facility has not yet been constructed, state which mechanism will be used for financial assurance; the owner or operator of such a facility must submit the mechanism at least 60 days before the date dangerous waste is first received for treatment or storage. *Ask Ecology for a copy of the federal language incorporating the proper wording for Washington State; see WAC 173-303-620(10).*

will recommence operation of the dangerous waste management unit or the facility within one year." If such a circumstance exists as the facility enters into closure, WAC 173-303-610 provides for the facility to request a permit modification to change the schedule. The department will approve the request if certain conditions are met.

Use one of the following mechanisms for financial assurance:

Closure Trust Fund. To demonstrate compliance, submit an originally signed duplicate of the trust agreement, using the wording required by 40 CFR §264.151(a)(1) and modified as required by WAC 173-303-620(10), along with a formal certification of acknowledgement. The maximum period over which payments may be made into the fund is the term of the dangerous waste permit (10 years). See 40 CFR §264.143(a) for more information on the mechanism.

Surety Bond Guaranteeing Payment Into a Closure Fund. To demonstrate compliance, provide a copy of the surety bond with the wording required by 40 CFR §264.151(b) and modified as required by WAC 173-303-620(10), along with a copy of the standby trust agreement. The bond must guarantee that the owner or operator will fund the standby trust fund in an amount equal to the penal sum²⁹ of the bond before the beginning of final closure of the facility, will fund the standby trust fund in an amount equal to the penal sum within 15 days of an order to begin closure, or will provide alternate financial assurance if the bond is canceled. See 40 CFR §264.143(b) for more information on the mechanism.

Surety Bond Guaranteeing Performance of Closure. To demonstrate compliance, provide a copy of the surety bond with the wording required by 40 CFR §264.151(c) and modified as required by WAC 173-303-620(10), guaranteeing that the owner or operator will perform closure according to the closure plan and the requirements of Section G. See 40 CFR §264.143(c) for more information on the mechanism.

Closure Letter of Credit. To demonstrate compliance, provide a copy of the irrevocable letter of credit with the wording required by 40 CFR §264.151(d) and modified as required by WAC 173-303-620(10), along with a copy of the standby trust agreement. The letter of credit must be issued for a period of at least one year and be for the amount of estimated closure. See 40 CFR §264.143(d) for more information on the mechanism.

Closure Insurance. To demonstrate compliance, provide a copy of the certificate of insurance with the wording required in 40 CFR §264.151(e) and modified as required by WAC 173-303-620(10). See 40 CFR §264.143(e) for more information on the mechanism.

Financial Test and Corporate Guarantee for Closure. To demonstrate compliance, submit a letter signed by the owner's or operator's chief financial officer and worded as specified by 40 CFR §264.151(f) and modified as required by WAC 173-303-620(10), along with a copy of the independent certified public accountant's report on examination of the applicant's financial statements for the latest fiscal year, and a special report from the certified public accountant. If a parent company is guaranteeing closure for a subsidiary facility, the corporate guarantee must accompany the preceding items. See 40 CFR §264.143(f) for more information on the mechanism. *If this mechanism is selected, the required demonstration **must** be provided in the application, even if the facility is new.*

Use of Multiple Financial Mechanisms. To demonstrate compliance when multiple mechanisms are selected, provide a copy of a combination of trust fund agreements, surety bonds guaranteeing

29 The *penal sum* must be at least the amount of the current closure cost estimate.

payment into a closure trust fund, letters of credit, or insurance, together which provide financial assurance for the amount of closure. See 40 CFR §264.143(g) for more information.

Use of Financial Mechanism for Multiple Facilities. To demonstrate compliance when a mechanism will be used for more than one facility, provide a copy of a financial assurance mechanism showing, for each facility, the Washington State ID number, name, address, and amount of funds closure assured by the mechanism. The amount of funds available through the mechanism must be no less than the sum of funds that would be available if a separate mechanism had been established and maintained for each facility. See 40 CFR §264.143(h) for more information.

I-2 Notice in Deed of Already Closed Disposal Units

806(4)(a)(xiv), 610(10) [270.14(b)(14), 264.120, 264.117(c), 264.119]

If the facility has closed dangerous waste **disposal** units, submit a copy of the notice or notation recorded in the deed to the facility property, or on some other instrument which is normally examined during title search, that will in perpetuity notify any potential purchaser of the property that (1) the land has been used to manage dangerous wastes; (2) its use is restricted; and (3) the survey plot and record of the type, location, and quantity of dangerous wastes disposed of within each cell or area of the facility has been filed with the local zoning authority or the authority with jurisdiction over local land use and with the Department.

I-3 Post-Closure Plan

Post-closure requirements are for land-based units or for tank systems that must be closed as land-based units. They are also for any area that cannot be cleaned up to meet closure standards, if dangerous waste constituents will be left on-site.

For post-closure requirements, see *Part B Permit Application: Additional Requirements for Facilities Which Dispose of Dangerous Wastes or Manage Them in Land-based Units*.

I-4 Liability Requirements

806(4)(a)(xvii), 620(8), 620(10) [270.14(b)(17), 264.147, 264.151]

Facilities must demonstrate financial responsibility for bodily injury and property damages to third parties caused by sudden and non-sudden accidental occurrences arising from operations of the facility. Provide copies of the established financial assurance mechanisms for liabilities, or if the facility has not yet been constructed, state which of the following mechanisms will be used for financial assurance³⁰. *Ask Ecology for a copy of the language incorporating the proper wording for Washington State.* In both cases, the demonstration must use the exact wording required under 40 CFR §264.151 and WAC 173-303-620(10).

³⁰ Note that the owner or operator of a new facility must submit the mechanism at least 60 days before the day dangerous waste is first received for treatment or storage.

I-4a Coverage for Sudden Accidental Occurrences: §264.147(a), (f) [620(8)(a)]

Liability coverage must be maintained for sudden accidental occurrences in the amount of at least \$1 million per occurrence with an annual aggregate of at least \$2 million. Liability coverage may be demonstrated in one of three ways:

Liability Insurance Endorsement or Certification. Submit a signed duplicate original of the Hazardous Waste Facility Liability Endorsement, with the wording specified by 40 CFR §264.151(i) and modified by WAC 173-303-620(10), or of a Certificate of Liability Insurance, with the wording specified by 40 CFR §264.151(j) and modified by WAC 173-303-620(10).

Financial Test for Liability Coverage. Submit a letter signed by the owner's or operator's chief financial officer and worded as specified by §264.151(g), a copy of the independent certified public accountant's report on examination of the applicant's financial statements for the latest fiscal year, and a special report from the certified public accountant. If the applicant is using the financial test to demonstrate both assurance for closure or post-closure care and liability coverage, the letter specified in 40 CFR §264.151(g) must be submitted to cover both forms of financial responsibility. Under these circumstances, a separate letter as specified by §264.151(f) is not required.

Use of Multiple Insurance Mechanisms. Submit items demonstrating required liability coverage through a combination of endorsement or certification and financial test as these mechanisms are specified above. The amounts of coverage demonstrated must total at least the minimum amounts required by 40 CFR §264.147(a).

I-4b Coverage for Nonsudden Accidental Occurrences

This requirement applies to facilities with miscellaneous units used for disposal and/or with one or more surface impoundments, landfills, land treatment areas, or waste piles.

I-4c Request for Variance: 264.147(c) [620(8)(c)]

To request an adjusted level of required liability coverage, describe the level desired and submit detailed support information to demonstrate that established levels of financial responsibility specified in 40 CFR §264.147(a) or (b) are not consistent with the degree and duration of risk associated with treatment or storage at the applicant's facility or group of facilities.

J. Other Federal and State Laws

806(4)(a)(xix) [270.14(b)(20), 270.3]

1. List environmental permits and approvals and construction approvals required for the facility. If you have already applied for or received the approvals, indicate the date the application was submitted or the approval issued. For issued permits and approvals, provide permit/approval numbers. Include applicable laws such as:
 - a. Federal laws -- the Wild and Scenic Rivers Act, National Historic Preservation Act of 1966, Endangered Species Act, Coastal Zone Management Act, Clean Water Act, Toxic Substances Control Act (for PCBs), Fish and Wildlife Coordination Act, and Atomic Energy Act (National Regulatory Commission licenses for "mixed waste");

- b. State Laws -- Chapter 90.48 Revised Code of Washington (RCW) Water Pollution Control, Chapter 70.94 RCW Washington Clean Air Act, Chapter 90.58 RCW Shoreline Management Act of 1971, Chapter 70.95 Solid Waste Management, and Chapter 70.95C RCW Hazardous Waste Reduction; and
 - c. Local requirements -- building permit, grading permit, fire department approval, new source construction permit (an air quality requirement), rezone or conditional use permit, substantial development permit (under Shoreline Management Act), and wastewater pre-treatment discharge authorizations.
2. Provide a completed environmental checklist prepared under the State Environmental Policy Act (SEPA) or reference an existing SEPA document (determination of nonsignificance or environmental impact statement) already prepared for construction and operation of the facility.

K. Part B Certification

806(4)(a), 810(12) and (13) [270.11]

Provide a certification letter as specified in 810(13) [40 CFR 270.11(d)] and signed as required by 810(12). The required signatures are as follows: (1) for a corporation, a principal executive officer (at least at the level of vice-president); (2) for a partnership or sole proprietorship, a general partner or the proprietor, respectively; (3) for a municipal, state, Federal, or other public agency, either a principal executive officer or ranking elected official. Provide one original signed certification; the extra application copies required by Ecology and EPA may contain copies of the certification rather than original signatures.

If the owner and the operator of a facility are separate entities, the owner and the operator must each provide the certification in 810(13)(a) and the owner must also provide the certification in 810(13)(b). This is due to RCW 70.105.215, which requires different permit certification language for situations where the owner and operator of a TSD facility are separate entities. However, EPA doesn't have such a provision. Therefore, Ecology and EPA have agreed to require TSD applicants to sign both the federal and the state certifications when applying for a Part B permit.

Part B Application Guidance and Checklist History

1986	Prepared
1987	Revised
1994	Requirements for incinerators and land-based units placed in a separate narrative.
1/95	Tanks/container checklist completely revised and updated. Federal air emissions requirements added. General requirements added.
2/95	Revised checklist published.
6/96	Checklist revised to incorporate changes to the Dangerous Waste Rules.

Application Checklist

Complete this checklist by providing the facility name and indicating where the listed material has been placed in the application. This is particularly important when the application does not closely follow the outline of the checklist and guidance. Include the completed checklist with the Dangerous Waste Permit application.

Facility name _____

Date Application Received _____

State of Washington Part B Permit Application Review Checklist for Treatment and Storage in Tanks and Containers		
	Technically Adequate?	Location in Application
A. Part A Form		
B. Facility Description and General Provisions		
B-1 General Description		
B-1(a) Facility Description		
B-1(b) Construction Schedule		
B-2 Topographic Map		
B-2a General Requirements		
B-2b Additional Requirements for Land Disposal Facilities	Not Applicable	Not Applicable
B-3 Seismic Consideration		
B-4 Traffic Information		
C. Waste Analysis		
C-1 Chemical, Biological and Physical Analyses		

C-1a	Waste In Piles	Not Applicable	Not Applicable
C-1b	Landfilled Wastes		
C-1c	Wastes Incinerated and Wastes Used in Performance Tests		
C-2	Waste Analysis Plan		
C-2a	Detailed Chemical, Physical, and/or Biological Analysis		
C-2a(1)	Parameters and Rationale		
C-2a(2)	Analytical Methods		
C-2a(3)	Generator-Supplied Analyses		
C-2b	Additional Requirements for Wastes Generated Off-site		
C-2b(1)	Parameters and Rationale to Confirm Identity of Off-site Waste		
C-2b(2)	Analytical Methods to Confirm Identity of Off-site Waste		
C-2b(3)	Representative Sampling of Incoming Off-site Wastes		
C-2c	Methods for Collecting Samples for Detailed and Confirming Analyses		
C-2d	Frequency of Analyses		
C-3	Manifest System		
C-3a	Procedures for Receiving Shipments		
C-3b	Response to Significant Discrepancies		
C-3c	Provisions for Non-acceptance of Shipment		
C-3c(1)	Non-acceptance of Undamaged Shipment		
C-3c(2)	Activation of Contingency Plan for Damaged Shipment		
C-4	Tracking System		

D.	Process Information		
D-1	Containers		
D-1a	Description of Containers		
D-1b	Container Management Practices		
D-1c	Container Labelling		
D-1d	Containment Requirements for Storing Containers		
D-1d(1)	Secondary Containment System Design		
D-1d(1)(a)	System Design		
D-1d(1)(b)	Structural Integrity of Base		
D-1d(1)(c)	Containment System Capacity		
D-1d(1)(d)	Control of Run-on		
D-1d(2)	Removal of Liquids from Containment System		
D-1e	Demonstration that Containment Is Not Required Because Containers Do Not Contain Free Liquids, Wastes That Exhibit Ignitability or Reactivity, or Wastes Designated F020 - 023, F026, or F027		
D-1f	Prevention of Reaction of Ignitable, Reactive, and Incompatible Wastes in Containers		
D-1f(1)	Management of Certain Reactive Wastes in Containers		
D-1f(2)	Management of Ignitable and Certain Other Reactive Wastes in Containers		
D-1f(3)	Design of Areas to Manage Incompatible Wastes		
D-2	Tank Systems		
D-2a	Design, Installation and Assessment of Tanks Systems		

D-2a(1) Design Requirements		
D-2a(2) Integrity Assessments		
D-2a(3) Additional Requirements for Existing Tanks		
D-2a(4) Additional Requirements for New Tanks		
D-2a(5) Additional Requirements for New On-ground or Underground Tanks		
D-2b Secondary Containment and Release Detection for Tank Systems		
D-2b(1) Requirements for All Tank Systems		
D-2b(2) Additional Requirements for Specific Types of Systems		
D-2b(2)(a) Vault Systems		
D-2b(2)(b) Double-walled Tanks		
D-2b(2)(c) Ancillary Equipment		
D-2c Variances from Secondary Containment Requirements		
D-2d Tank Management Practices		
D-2e Labels or Signs		
D-2f Air Emissions		
D-2g Management of Ignitable or Reactive Wastes in Tank Systems		
D-2h Management of Incompatible Wastes in Tank Systems		
D-3 Waste Piles D-4 Surface Impoundments D-5 Incinerators D-6 Landfills D-7 Land Treatment	Not Applicable	Not Applicable
D-8 Air Emissions Control		

D-8a	Process Vents		
D-8a(1)	Applicability of Subpart AA Standards		
D-8a(1)(a)	Process Vents Subject to Subpart AA Standards		
D-8a(1)(b)	Process Vents Not Subject to Subpart AA Standards		
D-8a(1)(c)	Re-evaluating Applicability of Subpart AA Standards		
D-8a(2)	Process Vents - Demonstrating Compliance		
D-8a(2)(a)	The Basis for Meeting Limits/Reductions		
D-8a(2)(b)	Demonstrating Compliance via Selected Method		
D-8a(2)(c)	Design Information and Operating Parameters for Closed Vent Systems and Control Devices		
D-8a(2)(d)	Re-evaluating Compliance with Subpart AA Standards		
D-8b	Equipment Leaks		
D-8b(1)	Applicability of Subpart BB Standards		
D-8b(1)(a)	Equipment Subject to Subpart BB		
D-8b(1)(b)	Re-evaluating Applicability of Subpart BB Standards		
D-8b(2)	Equipment Leaks - Demonstrating Compliance		
D-8b(2)(a)	Procedures for Identifying Equipment Location and Method of Compliance, Marking Equipment, and Ensuring Records are Up-to-date		
D-8b(2)(b)	Demonstrating Compliance with D-8b(1)(a) and (2)(a) Procedures		
D-8b(2)(c)	Closed Vent Systems or Control Devices: Showing Compliance with Emission Reduction Standards		
D-8c	Tanks and Containers		
D-8c(1)	Applicability of Subpart CC Standards		

D-8c(2)	Tank Systems and Container Areas - Demonstrating Compliance		
D-9	Waste Minimization		
D-10	Groundwater Monitoring for Land-based Units	Not Applicable	Not Applicable
E.	Releases from Solid Waste Management Units		
E-1	Solid Waste Management Units and Known and Suspected Releases of Dangerous Wastes or Constituents		
E-1a	Solid Waste Management Units		
E-1b	Releases		
E-2	Corrective Actions Implemented		
F.	Procedures to Prevent Hazards		
F-1	Security		
F-1a	Security Procedures and Equipment		
F-1b	Waiver		
F-2	Inspection Plan		
F-2a	General Inspection Requirements		
F-2b	Inspection Log		
F-2c	Schedule for Remedial Action for Problems Revealed		
F-2d	Specific Process or Waste Type Inspection Requirements		
F-2d(1)	Container Inspections		
F-2d(2)	Tank System Inspections and Corrective Actions		
F-2d(2)(a)	Tank System Inspections		

F-2d(2)(b)	Tank Systems - Corrective Actions		
F-2d(3)	Storage of Ignitable or Reactive Wastes		
F-2d(4)	Air Emissions Control and Detection - Inspections, Monitoring, and Corrective Actions		
F-2d(4)(a)	Process Vents		
F-2d(4)(b)	Equipment Leaks		
F-2d(4)(c)	Tanks and Containers		
F-2d(5)	Waste Pile Inspection	Not Applicable	Not Applicable
F-2d(6)	Surface Impoundment Inspection		
F-2d(7)	Incinerator Inspection		
F-2d(8)	Landfill Inspection		
F-2d(9)	Land Treatment Facility Inspection		
F-3	Preparedness and Prevention Requirements		
F-3a	Equipment Requirements		
F-3b	Aisle Space Requirement		
F-4	Preventive Procedures, Structures, and Equipment		
F-5	Prevention of Reaction of Ignitable, Reactive, and/or Incompatible Wastes		
F-5a	Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste		
F-5b	Precautions for Handling Ignitable or Reactive Waste and Mixing Incompatible Wastes		
F-5b(1)	Ignitable or Reactive Wastes In Tanks		
F-5b(2)	Incompatible Wastes In Containers or Tanks		
G.	Contingency Plan		
G-1	General Information		
G-2	Emergency Coordinators		
G-3	Circumstances Prompting Implementation		

G-4	Emergency Response Procedures		
G-4a	Notification		
G-4b	Identification of Dangerous Materials		
G-4c	Hazard Assessment and Report		
G-4d	Prevention of Recurrence or Spread of Fires, Explosions, or Releases		
G-4f	Post-Emergency Actions		
G-5	Emergency Equipment		
G-6	Coordination Agreements		
G-7	Evacuation Plan		
G-8	Required Reports, Recordkeeping, and Certifications		
G-8a	General Requirements		
G-8a	Requirements for Tank Systems		
H.	Personnel Training		
H-1	Job Title/Job Description		
H-2	Outline of Training Program		
H-3	Implementation of Training Program		
I.	Closure and Financial Assurance		
I-1	Closure Plan/Financial Assurance for Closure		
I-1a	Closure Performance Standard		
I-1b	Closure Activities		
I-1b(1)	Maximum Extent of Operation		
I-1b(2)	Removing Dangerous Wastes		

I-1b(3)	Decontaminating Structures, Equipment, and Soil		
I-1b(4)	Sampling and Analysis to Identify Extent of Decontamination/ Removal and to Verify Achievement of Closure Standard		
I-1b(4)(a)	Sampling to Confirm Decontamination of Structures and Soils		
I-1b(5)	Other Activities		
I-1c	Maximum Waste Inventory		
I-1d	Closure of Waste Piles, Surface Impoundments, Incinerators, Land Treatment, and Miscellaneous Units	Not Applicable	Not Applicable
I-1e	Closure of Landfill Units		
I-1f	Schedule for Closure		
I-1g	Extension for Closure Time		
I-1h	Closure Cost Estimate		
I-1i	Financial Assurance Mechanism for Closure		
I-2	Notice in Deed of Already Closed Disposal Units		
I-3	Post-Closure Plan		
I-4	Liability Requirements		
I-4a	Coverage for Sudden Accidental Occurrences		
I-4b	Coverage for Nonsudden Accidental Occurrences		
I-4c	Request for Variance		
J.	Other Federal and State Laws		
K.	Part B Certification		